

western industry

Sight-sound method makes difficult assembly easy at Northrup. See page 27.




featuring:

**AUDIO-VISUAL UNIT AN AID
TO COMPLICATED ASSEMBLY**

special:

PLANT ENGINEERING & MAINTENANCE

LITERATURE ON LUBRICANTS, PAINTS, COATINGS, ROOFING



I
make
boxcars

I
make
bicycles



Whatever you make—bicycles or boxcars, gauges or gears—count on Jorgensen for delivery of the steel you need...when you need it. Quick delivery is just one Jorgensen service. Among the others: modern cutting facilities...complete stocks of steel in a countless number of sizes, shapes and analyses...a staff of metallurgical engineers to provide technical assistance and help solve your problems of steel selection and processing. Whenever you need steel...Call Jorgensen first!

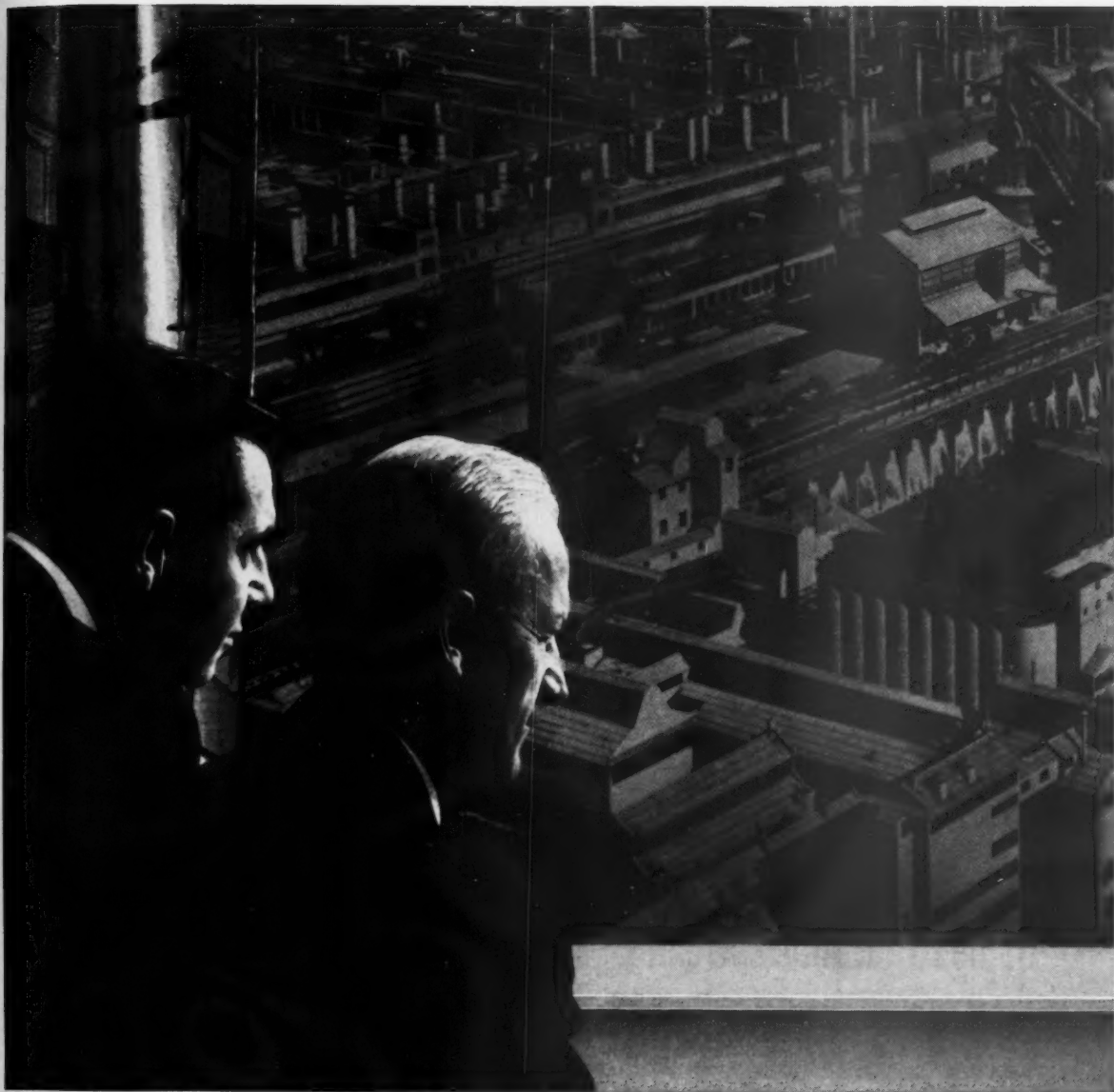


EARLE M. JORGENSEN CO.
STEEL

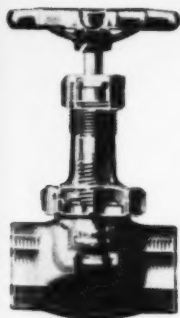
LOS ANGELES • SAN DIEGO

PHOENIX • OAKLAND • SAN FRANCISCO • SEATTLE • HONOLULU • HOUSTON • DALLAS • TULSA • DENVER • WASHINGTON

... for more details, circle No. 1 on Reader Service Postcard



**The LUNKENHEIMER Valves in your competitor's plant are
the valves that cost you most!**



With quality Lunkenheim Valves in his plant, your competitor enjoys lower maintenance costs . . . fewer production losses. And served by one of the West's leading distributors, he benefits from the prompt, dependable service for which Lunkenheim Distributors are famous throughout the nation. This unmatched combination helps him keep his costs down . . . his profits up. Why give him this important advantage? Telephone your local Lunkenheim Distributor or The Lunkenheim Co., at Cincinnati 14 (WA 1-3400), Los Angeles 15 (RI 7-0665), or San Francisco 11 (DO 2-4408).

You can't find the cost of a valve on a price list.

• BRONZE
• IRON
• STEEL
• PVC

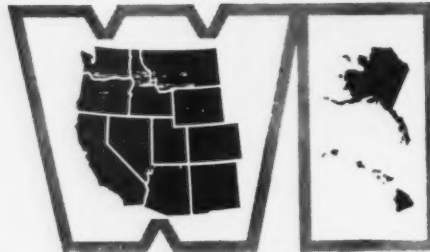


LUNKENHEIMER®
THE ONE *Great* NAME IN VALVES

L-260 101

WESTERN INDUSTRY/JUNE 1960

... for more details, circle No. 2 on Reader Service Postcard



SERVES THE THIRTEEN WESTERN STATES

SPECIAL REPORT 49	<i>Plant engineering and maintenance</i>
70	<i>Special manuals on lubricants, paints, coatings, roofing</i>
PRODUCTION (cover story) 27	<i>Audio-visual unit an aid to complicated assembly</i>
40	<i>Degreaser cover rolls back, is easy to handle</i>
MATERIAL HANDLING 29	<i>Handling system pays for itself</i>
32	<i>Fork lift trucks, effective maintenance procedures</i>
QUALITY CONTROL 31	<i>Moisture meter checks and grades lumber for dryness</i>
METALS 30	<i>Overload device solves difficult foundry problem</i>
MANAGEMENT 42	<i>Pictorial review material handling show</i>
COVER PHOTO	<i>Borrowing an idea from educational profession, Nortronics Div., Northrop Corp., is using a new audio-visual method for assembly of difficult units. Girl in picture watches slide showing assembly operation while at the same time she hears voice instruction on how to perform operation.</i>

DEPARTMENTS 12	WESTERN MEETING REPORTS
58	HELPFUL LITERATURE
60	ADVERTISED LITERATURE
74	NEW EQUIPMENT
87	WESTERN INDUSTRY NEWS
112	WESTERNERS AT WORK
116	INDEX TO ADVERTISERS

READ BY PRODUCTION ENGINEERING AND PURCHASING MANAGEMENT OF MANUFACTURING AND PROCESSING PLANTS IN THE 13 WESTERN STATES

Published monthly by
KING PUBLICATIONS
609 Mission Street
San Francisco 5, Calif.
Phone YUkon 2-4343

Los Angeles Office
The Plan Room Building
1417 Georgia St.
Los Angeles 15, Calif.
Phone Richmond 9-3278

Editorial

EDITOR
Murat Boyle
NEWS EDITOR
Peggy V. Kopmann
SOUTHERN CALIFORNIA EDITOR, Los Angeles
William H. Durkee
NEWS CORRESPONDENTS
Stan Reed, Seattle
John Denny, Portland
Ray Zileski, Phoenix
Ernest Fair, Denver

Business

PUBLISHER
Robert C. Johnson
PRODUCTION MANAGER
Shirley Hunt
CIRCULATION MANAGER
C. J. Prodingor
PROMOTION MANAGER
Terry Alcorn

Advertising

DISTRICT MANAGER
James J. Elliott,
Los Angeles
EASTERN MANAGER
Vaughn K. Dissette
812 Bell Rd.
Chagrin Falls, Ohio
Chestnut 7-7680

Administrative

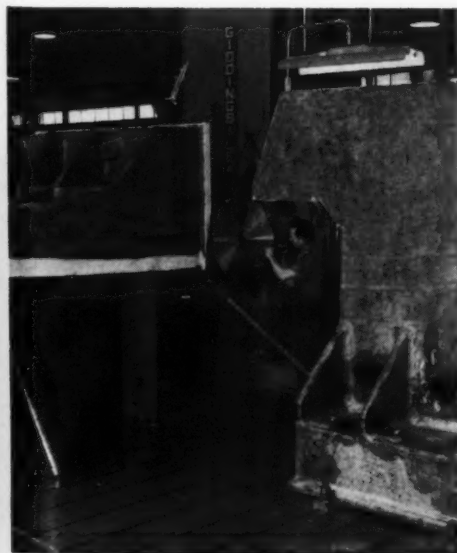
James I. Ballard . . . President
L. P. Vrettos . . . Vice President
and General Manager
Robert C. Johnson . Vice President
Subscription rate: \$10.00 per year. Cost per single copy, \$1.00
Accepted as Controlled Circulation Publication at Portland, Oregon.
Postmaster: Please send Notice of Change of address, 609 Mission Street, San Francisco 5, California. For Change of address, write Circulation Dept., 609 Mission St., San Francisco 5, Calif.
Copyright 1960, King Publications





Special forms are no casting problem at National Supply's Torrance plant. Complete services are available for forgings, billets and large bars, steel castings and special machinery.

How National Supply's West Coast facilities can be used to SUPPLEMENT YOUR PRODUCTION FACILITIES



National Supply's Torrance, California, plant is the largest integrated machinery-making plant in the West. Facilities of this plant are now available to help solve your production bottlenecks. If you need help with special casting, forging or machining problems, call National Supply's Torrance plant for fast, reliable service. Or send your drawings and specifications for bids and possible delivery information.



THE NATIONAL SUPPLY COMPANY

Torrance, California · Los Angeles Area

Subsidiary of Armco Steel Corporation



◀ This National Supply workman is setting up a facing operation on slag pot stands produced at Torrance. Stands weigh 17,000 lbs. and 22,000 lbs.



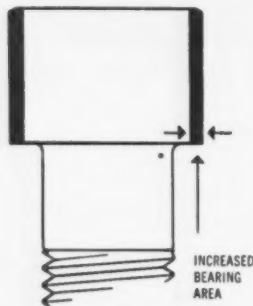
Steel's Symbol
of strength,
long life,
and economy

Up to 2 $\frac{1}{3}$ times as much holding power!

Up to 100% longer fatigue life!

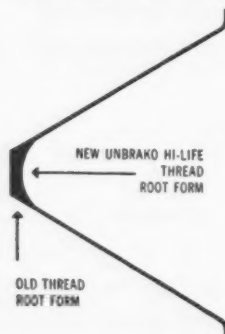
New UNBRAKO *pHd** Hi-Life socket screws increase mechanical reliability of your assemblies without increasing production costs

Stronger in the head



New pHd head features increased bearing area, more powerful wrenching socket; provides up to 2 $\frac{1}{3}$ times as much clamping force without indenting bolted material. This permits higher preloading, which in turn helps prevent fatigue failures or loosening under vibration.

Stronger in the thread



Smoothly radiused root of new Hi-Life thread distributes stress concentrations at point where 85% of screw failures occur, practically doubles fatigue life. New thread—exclusive with UNBRAKO—fits standard tapped holes and nuts, requires no special gaging or assembly techniques.



Here is the one new socket head cap screw that is redesigned *throughout*. UNBRAKO pHd Hi-Life is the only standard socket screw offering you both the new, larger pHd head (1960 Series) and new UNBRAKO Hi-Life thread.

Because of increased bearing area under the head, you can tighten a pHd Hi-Life tighter without indenting bolted material. This safeguards vital preload; protects against loosening under shock or vibration. At the same time, the new Hi-Life thread form drastically reduces stress concentrations at the root, where most screw failures occur. Result: up to 100% increase in fatigue life.

Both the pHd head and Hi-Life thread originated in the SPS laboratories for advanced fastener research where they were first developed for ultra-high-strength aircraft bolts. Recognizing the critical need for greater mechanical reliability in industrial and consumer goods as well, SPS now offers these refinements in a standard commercial fastener.

New UNBRAKO pHd Hi-Life socket screws are available to you immediately in sizes $\frac{1}{4}$ through 1 inch, plain or cadmium plated, with or without the Nylok† self-locking feature. They cost no more, require no change in assembly or gaging procedures. See your authorized UNBRAKO distributor or write SPS—manufacturer of precision threaded fasteners and allied products in many metals, including titanium. Request Bulletins 2406, 2577.

†T.M. Reg. U.S. Pat. Off., The Nylok Corp.

TENSION-TENSION FATIGUE TESTS PROVE LONGER FATIGUE LIFE OF UNBRAKO HI-LIFE THREAD FORM

Screw Size: $\frac{1}{2}$ -20 Testing Speed: 1050 cpm

Alternating Stress in psi (000 omitted)	Cycle Life	
	Old Thread Root Form	UNBRAKO Hi-Life Thread's
2-20	2,076,000	8,000,000*
3-30	598,000	1,808,000
4-40	120,700	232,350
5-50	56,650	89,950
7-70	22,900	40,000

*Test stopped—no failure

INDUSTRIAL FASTENER Division

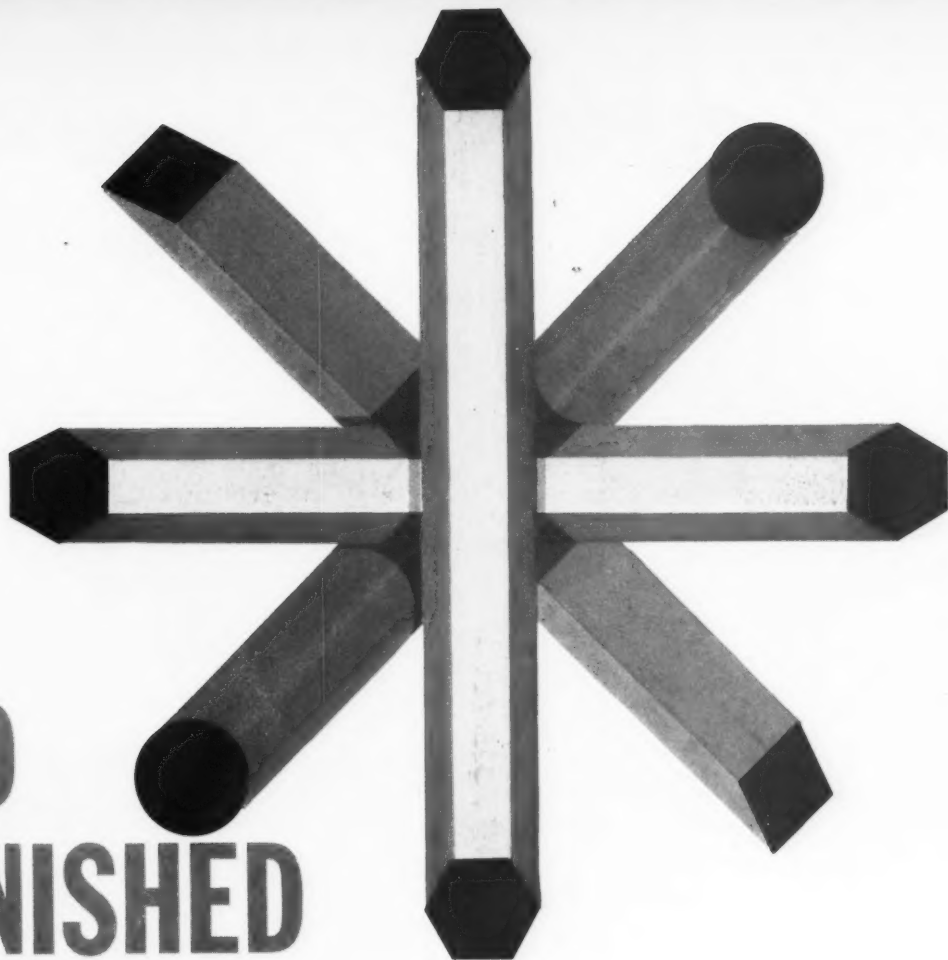
JENKINTOWN 47, PENNSYLVANIA

SPS

where reliability replaces probability

*pHd stands for "proper head design"—a factor in higher product reliability

... for more details, circle No. 4 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960



COLD FINISHED BARS



NEED THEM? Call **PATCO** and get uniform quality bars and prompt delivery.

SIZES: ROUNDS— $\frac{3}{8}$ " to $4\frac{1}{2}$ " • SQUARES— $\frac{1}{4}$ " to $2\frac{1}{2}$ " • HEXAGONS— $\frac{1}{4}$ " to $2\frac{1}{2}$ ".

GRADES: C-1213X, C-1018, C-1117, C-1137, C-1045, Leaded Steels Grades A and B.

Other analyses on application. **SHAFTING:** Cold Drawn Ground and Polished— $\frac{1}{4}$ " to $2\frac{3}{8}$ "

Turned, Ground and Polished—1" to $4\frac{1}{2}$ " • Turned and Polished—1" to $4\frac{1}{2}$ ".

Call your local Steel Service Center or **PATCO** today!

PACIFIC TUBE COMPANY

5710 Smithway Street, Los Angeles 22, California • Phone: RAymond 3-1331

Western Representative for Superior Tube Company

Mill Agent (Bars): Fred G. Greaves Company, Seattle, Washington

PATCO
makes cold
drawn
Carbon,
Alloy and
Stainless
Steel
Seamless
and Welded
Tubing.





COLD ROLLED STRIP STEELS

- STAINLESS
- SPRING GRADES
- LOW CARBON

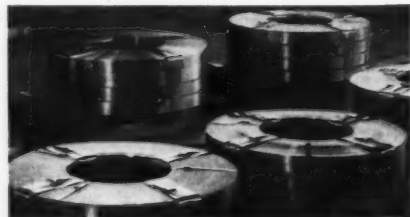


ROLLED TO YOUR SPECIFICATIONS

RESTRICTED TOLERANCES • CONTROLLED GRAIN STRUCTURES
UNIFORM TEMPER • FINER FINISHES

For 20 years, western manufacturers have relied on Calstrip for the specialty strip steels needed in a wide variety of products. Custom rolling of steels to exact specifications for all types of stamping, forming and drawing operations has resulted in a specialized background that can be profitable to you in your own particular fabricating or assembly.

Calstrip mill and offices are located in Los Angeles to assure you of fast, dependable service, and on-the-spot attention to your needs. Call today for complete information.



Calstrip[®] STEEL CORPORATION

Mill and Offices: 7140 Bandini Boulevard, Los Angeles 22, California

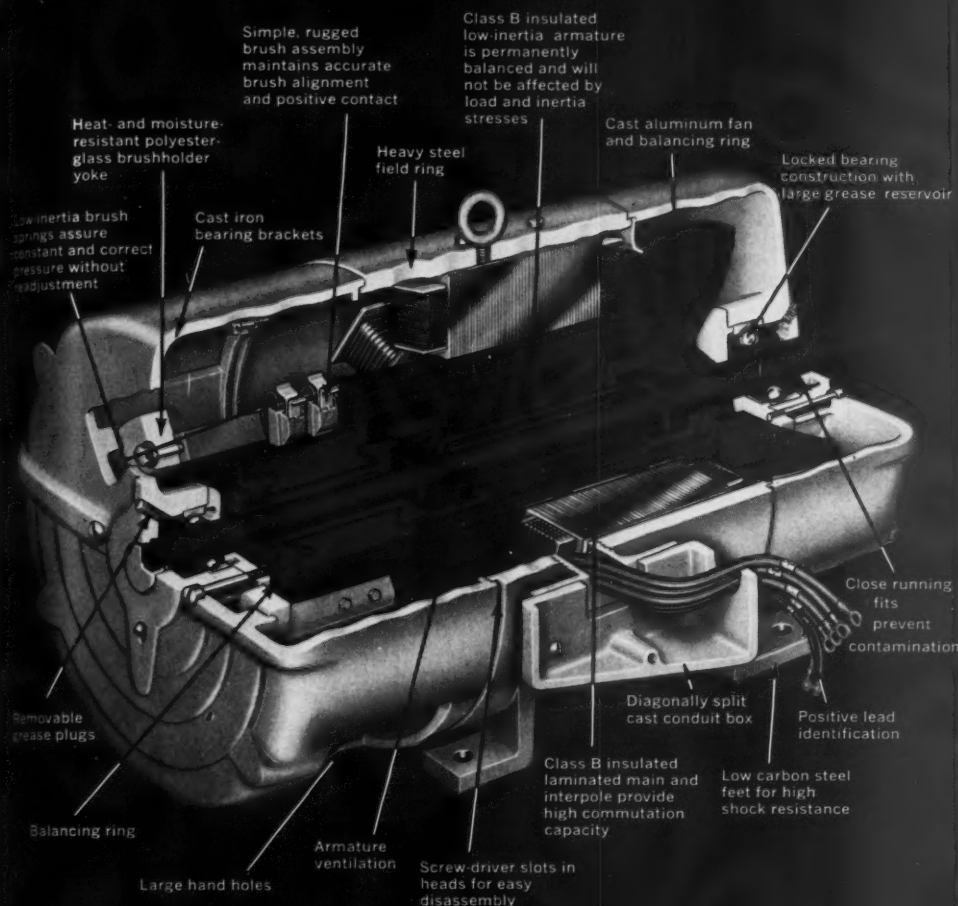
RAymond 3-1344 • PARKview 8-0541

Northern California Representative: Special Metals Supply, Inc., 175 Demeter St., Palo Alto, DAvenport 6-8181

... for more details, circle No. 6 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960

Here's the latest in D-C motor design:



...and some
easy-to-add
field
modifications



A-c tachometer for speed indication



A-c motor-driven blower with permanent dry-type filter for easy mounting on bearing bracket



Magnetic disc-type brake with d-c series or shunt, or a-c coils



Helical single, double, and triple reduction gear units for all ratios

New Louis Allis FLEXITORQ® D-C MOTORS

...offer you vastly improved commutation—low brush wear—
400% short-time overload capacity—and unmatched flexibility!

Bear this in mind: The Flexitorq is *not* just another rerated d-c motor. It's *all new*—and it's been designed to give you more for your power dollar — in superior performance, matchless field flexibility, and unrivalled economy of operation and upkeep.

Advanced armature design and brush construction offers improved commutation, faster response, and lower brush wear. Class B insulation system provides exceptional thermal endurance... is rated for 60°C rise for continuous duty... and creates a barrier to moisture, acids, alkalis, and other contamination.

The net result to you is reliable, trouble-free power for constant and adjustable speed drives. For example, Flexitorq gives you 400% faster acceleration, plus much better deceleration, reversing, and speed changing. You can safely impose 400% intermittent and 15%

continuous overloads — and the high-torque design is a welcome plus when you need extra power for hard-to-start machines.

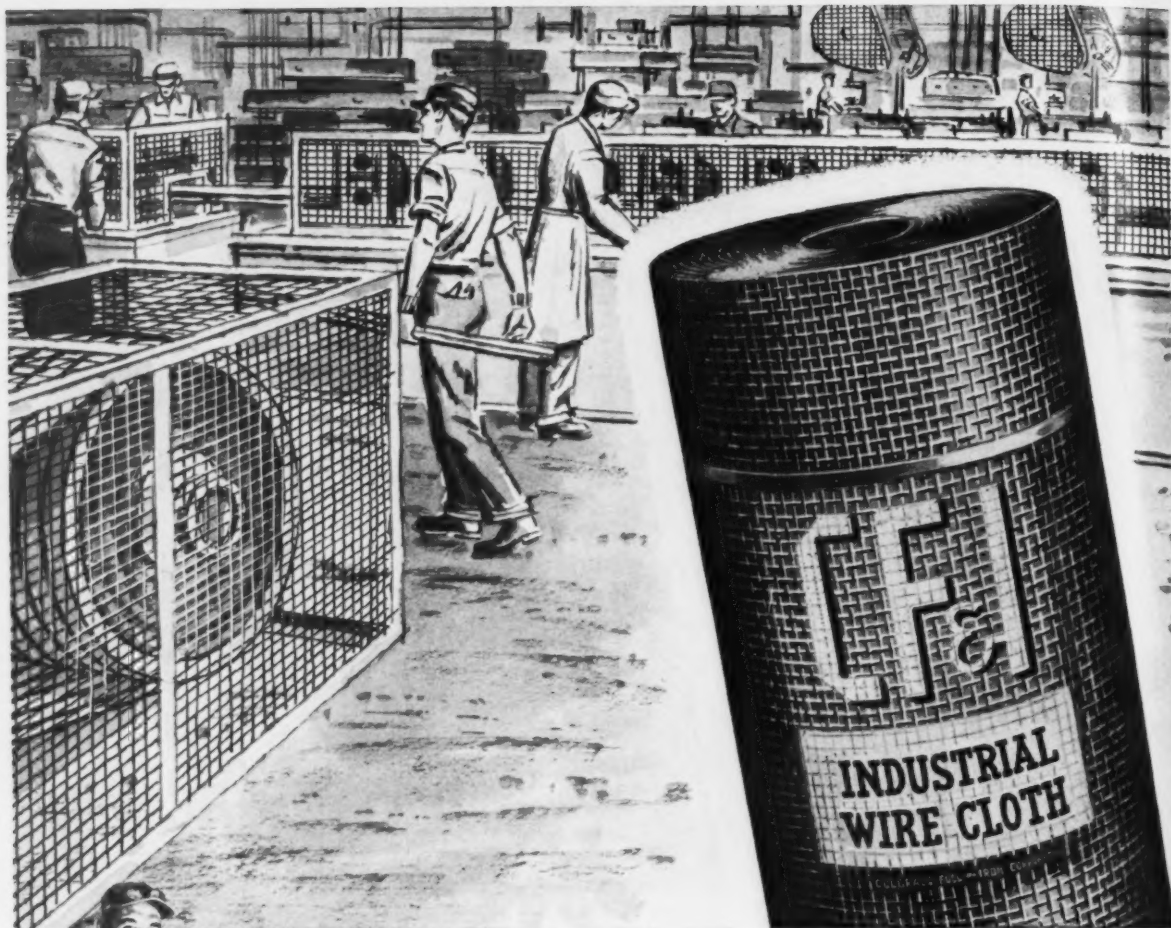
The new Louis Allis Flexitorq is lighter and more compact than previous d-c motors... lets you squeeze more power into less space... yet is actually *easier* to service! Brushes and entire brush-holder assemblies can be quickly inspected and removed without major disassembly. And since brush springs remain conveniently attached to the brush holders, brush changing is a simple affair.

Flexitorq d-c motors are available in sizes from 1 to 400 hp — in various enclosures. See your nearby Louis Allis District Office for information and application help. Or write for Bulletins 3150 and 3200 to The Louis Allis Co., 438 E. Stewart St., Milwaukee 1, Wis.

LOUIS ALLIS

DC-317

MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE SPEED DRIVES
BURLINGAME • DENVER • LOS ANGELES • PHOENIX • PORTLAND • SALT LAKE CITY • SEATTLE



You can use
CF&I Industrial Wire Cloth
 in your plant

The applications of CF&I Industrial Wire Cloth are literally limitless. The Image of CF&I is your reminder of the versatility and service derived from this extremely useful product.

As machinery guards, filter cloth, processing and treating components, and reinforcing material, CF&I Industrial Wire Cloth does a multitude of jobs. Every day, another customer informs us of a new application.

Made in our Oakland, California plant for Western use, CF&I Industrial Wire Cloth can be ordered in

carbon steel, galvanized and stainless steels, aluminum, brass, copper and Monel, plus other special alloys. A wide range of meshes and weaves are also available.

Take a look around your plant. Chances are you'll find several applications for one of the many types and styles of CF&I Industrial Wire Cloth. Better still, call your local CF&I sales office. An experienced sales representative will be happy to help you select a cloth that will improve production efficiency and increase plant safety.

INDUSTRIAL WIRE CLOTH
 THE COLORADO FUEL AND IRON CORPORATION



Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Farmington (N.M.) • Ft. Worth • Fresno • Houston • Lincoln
 Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Sacramento • Salt Lake City • San Francisco • San Leandro
 Seattle • Spokane • Wichita

CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

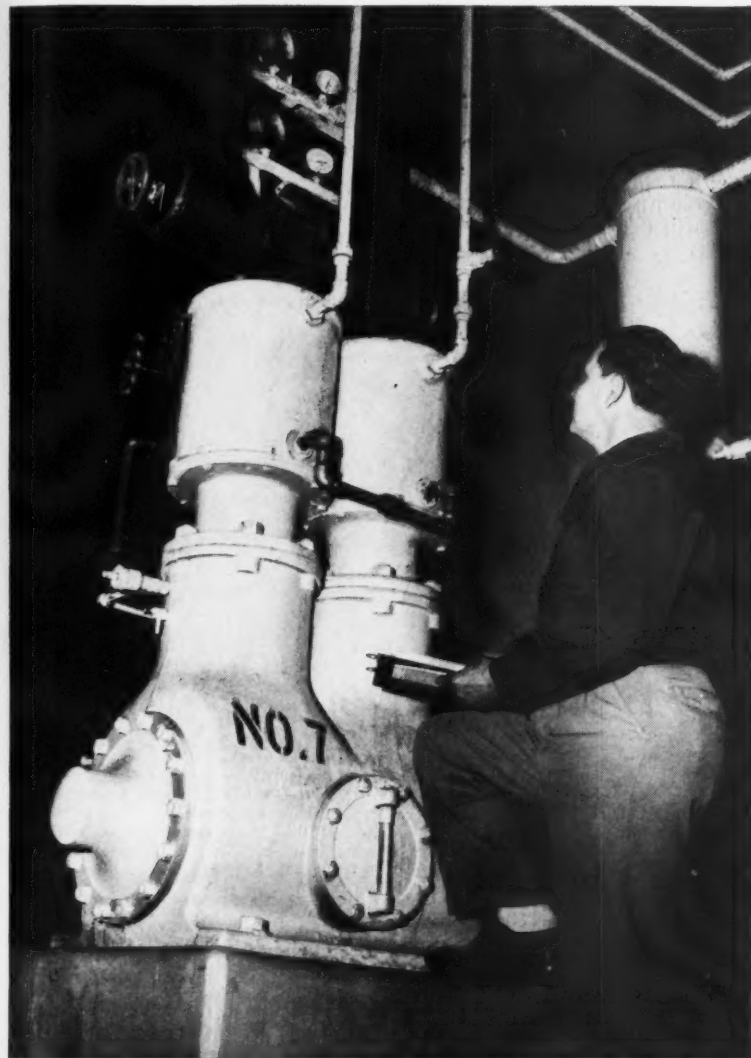
... for more details, circle No. 8 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960

STANDARD ENGINEER'S FIELD REPORT

PRODUCT **Chevron Multi-Machine Oil ICH**
FIRM **Roma Wine Company
Fresno, California**

Compressor in service 10 years without repairs



This 40-ton Cyclops Ammonia Compressor is still operating efficiently after more than 10 years' continuous service using Chevron Multi-Machine Oil ICH (formerly Calol). Maintenance superintendent Joe Kovacevich, who is reading head and back pressure gauges (above), reports compressor has not required any repairs during this entire time.

Chevron Multi-Machine Oil ICH is also used in winery's 12 other compressors. These refrigerate wine to accelerate aging and solidify impurities to permit filtering. Valves in compressors occasionally need grinding or replacement, but lower assemblies average 7 to 8 years of almost continuous service before needing repairs of any kind, reports Mr. Kovacevich.

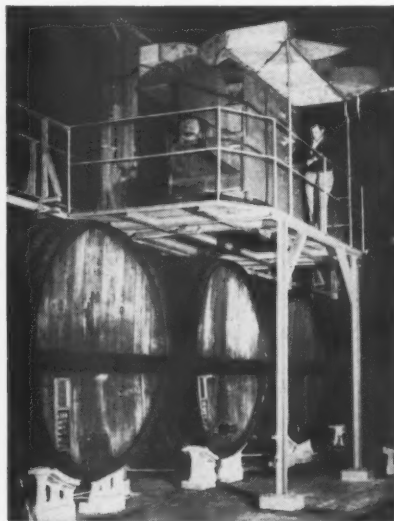


TRADEMARK "CHEVRON" AND "CHEVRON" DESIGN REG. U.S. PAT. OFF.

STANDARD OIL COMPANY OF CALIFORNIA

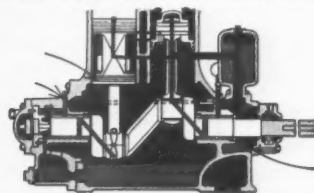
... for more details, circle No. 9 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960



Blower Units keep oak casks at 45°F to hasten aging of wine. Compressor using Chevron Multi-Machine Oil ICH (described at left) serves three of these Niagara blowers.

Why Chevron Multi-Machine Oil ICH reduces maintenance on bearings, pumps and compressors



- Resists formation of deposits; has extremely low pour point
- Metal-wetting ability keeps oil on bearings under heaviest loads
- Separates rapidly from water and contaminants
- Assures efficient seal of stuffing box glands

For More Information on this product or a copy of the new free catalog: "A Lubricant Reference Guide to Economical Equipment Operation," call your Standard Engineer or Representative, or write 225 Bush St., San Francisco 20, California.

western
industry



western meetings

Western Packaging and Materials Handling Exposition Opens July 19 at Los Angeles

THE FINAL WEEKS prior to the 1960 Western Packaging and Materials Handling Exposition at Los Angeles Pan-Pacific Auditorium July 19-21 are showing an expanded but virtually sold out display area and more advance attendance interest than in any of the eight previous expositions.

Clapp & Poliak, which produces the big regional biennial show, has been able to expand the space arrangement by 25%, which accommodated larger displays by over 160 exhibitors. No less impressive are advance inquiries showing that top management personnel who will attend may number 11,000, a 10% increase over attendance at the 1958 exposition in San Francisco. According to Clapp & Poliak, most of the newcomers will represent the 3600 new and expanded industries in the 11-state regions since the last meeting.

Some 160 manufacturers, processors, and sales representatives of packaging and materials handling machinery and equipment, package-making materials, supplies, processes and firms supplying shippers and storers of all types of goods, both for consumer and non-consumer, have contracted for space.

A great many firms report enthusiastically the first Western display of new machinery, and in some cases, the first-time-ever viewing of improved equipment and supplies. "We know the backlog of buyer interest in securing better, more economical machinery and supplies will make a heavy sales impact on the manufacturers and vendors who have brought their newest products to market," Saul Poliak of Clapp & Poliak said.

Two hundred and eight state and local Chambers of Commerce throughout the West have taken an active part in pointing out the advantages of the regional manufacturer-to-buyer trade show and marketplace.

William H. Jaenicke, well known packaging consultant, and Kenneth O. Dean of Good Packaging magazine serve as co-chairmen of the 1960 exposition.

As a concurrent feature of the Exposition, the Western Packaging Association will hold its quarterly meeting at the Sheraton-West Hotel in Los Angeles. A breakfast meeting is scheduled on Thursday, July 21, at which Roy King of Food Field Reporter will be featured speaker. His subject is titled "The Supermarket Speaks—Why Make It So Tough For Us To Sell Your Products?"

Show attendance will be carefully screened, restricted to owners and operators of businesses using packaging and materials handling equipment, materials, machinery, and their various components, plant managers and production and distribution engineers and executives, and purchasing agents, assuring productiveness to both exhibitors and buyers.

Advance registration tickets are available, without cost, from any of the exhibitors and from Clapp & Poliak, 759 Monadnock Building, San Francisco 5, California.

Hours during which the exposition is to be open are: Tuesday, July 19, 1:00 P.M. to 6:00 P.M.; Wednesday, July 20, 1:00 P.M. to 10:00 P.M.; Thursday, July 21, 1:00 P.M. to 6:00 P.M.

Named Outstanding Businessman of Year By Los Angeles Group

NAMED "Outstanding Businessman of the Year" was John Delmonte, president and general manager of Furane Plastics, Inc., Los Angeles, who received the award from John B. Farrell, president of the National Assn. of Accountants, Los Angeles chapter. Award was made at the Los Angeles Ambassador Hotel during the thirteenth annual Southern California Business Show.



JOHN B. FARRELL, left, president of the National Association of Accountants, Los Angeles Chapter, looks on as John Delmonte, president of Furane Plastics, gives short acceptance speech after receiving "Outstanding Businessman of the Year" award plaque. Last year's winner was W. H. Thomas, head of James B. Lansing Sound, Inc.

Delmonte was praised for his personal contributions to plastics technology and to the growth of his own firm that specializes in formulating and supplying epoxies and plastics for application in aircraft, missile, electronics and construction fields.

Currently chairman of the Western Section, Society of the Plastics Industry, Delmonte heads a 100 employee facility at 4516 Brazil St., Los Angeles.

New Material Handling Show for 1962

THE MATERIAL HANDLING INSTITUTE, INC., which several months ago announced a new program of regional trade shows that feature industrial material handling and packaging products, has extended its show program into 1962. The Institute some months ago announced a regional trade show would be held at San Francisco in 1961. In 1962, March 6-8, the Material Handling Institute Pacific Coast Show will occupy the Pan-Pacific Auditorium in Los Angeles.

AUTOMATIC SLASHES GAS LIFT TRUCK OPERATING COSTS **3** WAYS



1

CUTS OUT-OF-POCKET COSTS

Savings up to 30% on fuel costs achieved through use of a simplified electric power train. New 3-way adjustable seat increases driver efficiency...reduces fatigue. Simplified balanced design saves on downtime.

2

CUTS MAINTENANCE COSTS

Hydraulic pump life increased by 50%. Oversize brakes last up to 30% longer and are adjustable without removing wheels. Advanced-design roller mounting increases life of uprights. No clutch or hydraulic torque converter to cause trouble.

3

INITIAL COST REDUCED

No longer a premium-priced truck, but priced competitively with trucks which use hydraulic torque converters.

LEARN MORE about how Automatic's gas-operated, electric-driven trucks can slash your operating costs. Available in capacities 3,000 to 10,000 lbs. with cushion tires, 3,000 to 8,000 lbs. with pneumatic tires. Write today.



AUTOMATIC TRANSPORTATION COMPANY
Division of The Yale & Towne Manufacturing Company
121 West 87th Street, Dept. H-O, Chicago 20, Ill.

**FIRST IN IMAGINATION
FIRST WITH REALITY**

**LEARN MORE ABOUT
AUTOMATIC'S COST-CUTTING
LIFT TRUCKS**

Please send me complete details about
Automatic Gas-Operated, Electric-Driven
Lift Trucks, in capacities
of _____ lbs. _____ lbs. _____ lbs.

NAME _____
FIRM _____
ADDRESS _____
CITY & ZONE _____ STATE _____

... for more details, circle No. 10 on Reader Service Postcard

MEETINGS

(continued)

University of California Management Conference To Meet June 12-July 1 at Lake Arrowhead

MANAGERS AND EXECUTIVES will leave the daily pressures of their jobs for three weeks to get a broad overview of their complex functions and responsibilities at the secluded University of California Extension conference center at Lake Arrowhead.

During the Executive Program, from June 12 to July 1, participants will exchange views in small workshop groups, study case problems-solving sessions, and enjoy the Center's many recreational facilities.

Theme of this year's program is the "Complete Management Outlook," designed to present an integrated view of the executive's job and help him develop his own potential. Leading banking, industrial, aviation, newspaper, petroleum and electronic firms are co-sponsoring the program.

Emphasis will be on the roles of human relations, management principles and practices, accounting and of business attitudes toward the community, government, and foreign trade.

Aeronautical Weight Engineers Society Holds Technical Meeting and Panel Session



EXAMPLE OF CHEM SIZING is this missile dome made from hot rolled 4335 AMS Stainless that was sized to $.248 \pm .002$ -in. and thereby brought into usable tolerances. Dome is shown being ultrasonically tested for wall thickness.

CRITICAL WEIGHT PROBLEMS faced by engineers dealing with new air and missile frames and outer space vehicles were proved by some 200 of the 1000-member Society of Aeronautical Weight Engineers at the Hollywood Roosevelt Hotel late last month.

More than one dozen SAWE papers were presented on weight reduction problems ranging from weight estimation of manned space entry vehicles to the more prosaic sub-

ject of helicopters used as prime movers of material. Formal papers were augmented by panel sessions covering both civil and military subjects.

Among local firms participating in technical sessions was Anadite Inc., South Gate, Calif., chemical milling and metal finishing firm. Joseph E. Trankla, assistant general manager, read a paper on the new Chem-Size process that enables the industry to use less expensive steels for use in critical air and missile frame applications by bringing the steel into tolerance at a specific gage. This is especially useful on hot rolled stainless, once considered unusable because of poor surface quality.

Other local firms participating in the conference were North American Aviation, Lockheed, Douglas Aircraft, and Space Technology Laboratories. The society, with 150 Los Angeles members, is headed by Ed Payne, North American Aviation. Society secretary is D. L. Smith, Douglas Aircraft Co.

Speakers At Instrument Society Conference



SPEAKERS AT THE KEYNOTE SESSION of the Instrument Society of America Instrument-Automation Conference and Exhibit held in San Francisco May 9-12 included from left to right, Dr. Dean E. Wooldridge, president of Thompson Ramo, who spoke on "The Intellectronic Revolution—Its Instrumentation Implications," Mayor George Christopher, San Francisco, who spoke on his recent trip to Russia, and on his objective to make San Francisco a world center for scientific and engineering knowledge and exchange of knowledge, and Bernard S. Benson, president of Benson-Lehner Corp., Santa Monica, who spoke on "Potential Uses and Abuses of Gigantic Machine Memories."

Westerner Is New President of Steel Service Center Institute

WAYNE RISING has been elected president of the Steel Service Center Institute for the coming year, it was announced at the final session of the organization's 51st annual meeting held at Hotel Fontainebleau, Miami Beach.

Rising is vice president of Ducommun Metals & Supply Co., Los Angeles. C. L. Hardy, Chicago, President of Joseph T. Ryerson & Son, Inc., was elected chairman of the Institute's executive committee and Robert G. Welch, Cleveland, executive vice president of the national trade association of steel service centers.



Two Anaconda Plants to serve the Growing Industrial West

Early last year, the Anaconda Wire & Cable Company added a new facility at Redwood City, California, (Sequoia Wire and Cable Company) for production of a line of wire and cable to meet the special requirements of the fast-moving electronics industry.

Anaconda has long been a partner to the growing, dynamic West and has been proud to have been part of this growth. For over thirty years, the Orange, California, plant has exerted every effort to better serve its utilities, industries, railroads and other customers in the manner expected by these fast-growing customers.

In addition to complete stocks and technical services located at these two plants, the research and engineering facilities and the varied manufacturing skills of the nationwide Anaconda Wire & Cable Company are available to

—and stand behind—the Orange and Redwood City, California, plants. Anaconda is proud to be part of the growing industrial west.

60264

Anaconda Wire & Cable Company Western District Sales Offices

Denver, Colo.—Los Angeles, Calif.—Salt Lake City, Utah
San Francisco, Calif.—Seattle, Wash.—Phoenix, Ariz.

SEE THE MAN FROM

ANACONDA®

FOR ELECTRONIC
AND ELECTRICAL WIRE AND CABLE

MEETINGS

(Continued)

3rd Western Material Show and Packaging Cavalcade



OFFERING A CORDIAL HANDSHAKE to Noble Jones, president of SPHE Los Angeles Chapter is Chuck Shibel, newly elected vice president of the Los Angeles Chapter of AMHS. Looking on from left to right are Ken Brown, Les Herman, Harper Welton, Packaging Section Chairman; and Ted Bottiggi. Conference was held under the theme, "The Integration of Handling and Packaging."



RICHARD BUSHMAN, BALL BROS., El Monte, Calif., was first prize winner in the AMHS Fork Lift Truck Rodeo during which 78 operators from Western firms competed on the tricky course. Roland Renaud, right, Rodeo Chairman, hands out the trophy.

Investment Casters Society Elects Officers

AT A RECENT MEETING of the Investment Casters Society, the following officers were selected to serve through 1961: Allen Smith, Picco, Inc., chairman of the board; Myron Orbaugh, Bone Engineering, president; George Warde, Arwood, vice-president; Joe Demeter, Rex, director; Frank Taylor, Joseff, director; and Dick Ells, Dick Ells Co., secretary-treasurer.

Metal Finishers Convention

NATIONAL ASSOCIATION OF METAL FINISHERS is holding its annual convention and meeting at the Statler Hilton Hotel, Los Angeles, California, July 22-25, 1960. Three Management Seminars are scheduled during the convention. Their titles are "Management Planning for Profits," "Is It a Sin To Make a Profit," and "Operating Cost Factors."

1960 Packaging Winners

WINNERS of the 1960 Packaging and Materials Handling Competition sponsored by the Society of Packaging and Handling Engineers were presented their awards at a banquet on May 11 held in Los Angeles in conjunction with the 3rd Western Material Handling Show and Packaging Cavalcade. Winners received their awards from C. L. Lippman, U. S. Steel, San Francisco, National President of the Society. Feature speaker at the banquet was Major General Dan F. Callahan, U. S. Air Force.

Winners are:

"Best of Show Henry L. Jackson Award"

S. Kuzma, General Chemical Division, Allied Chemical Corporation, New York City.

"Corrugated and Solid Fiberboard Boxes"

1st: Wilburn Couch, General Motors Corporation, Truck & Coach Division, Pontiac, Mich.

Honorable Mention: A. G. Lynn, Eitel-McCullough, Inc., San Carlos, Calif.

"Nailed Wood Boxes"

1st: A. Bonin, Norair Division, Northrop Corporation, Hawthorne, Calif.

Honorable Mention: D. R. Lewis, Specification Packaging Engineering, North Hollywood, Calif.

"Wirebound Boxes and Crates"

1st: S. Kuzma, General Chemical Division, Allied Chemical Corp., New York City.

"Cleated Boxes"

1st: R. S. Leonard, Aerospace Division, Boeing Airplane Co., Seattle, Wash.

"General"

1st: A. G. Lynn, Eitel-McCullough, Inc., San Carlos, Calif.

2nd: S. P. Schumacher, Micro-Switch Division, Minneapolis-Honeywell, Freeport, Ill.

3rd: J. White, Norair Division, Northrop Corporation, Hawthorne, Calif.

"Military"

1st: K. D. Miller, Rocketdyne Division, North American Aviation, Inc., Canoga Park, Calif.

2nd: J. F. Grutzik, Norair Division, Northrop Corporation, Hawthorne, Calif.

3rd: H. C. Roe, USAF, San Bernardino Air Material Area, Norton Air Force Base, San Bernardino, Calif.

"Material Handling Division"

1st: G. A. Peters, Autonetics Division, North American Aviation, Downey, Calif.

2nd: M. A. Sweet, W. B. Semco & Associates, Los Angeles, Calif.

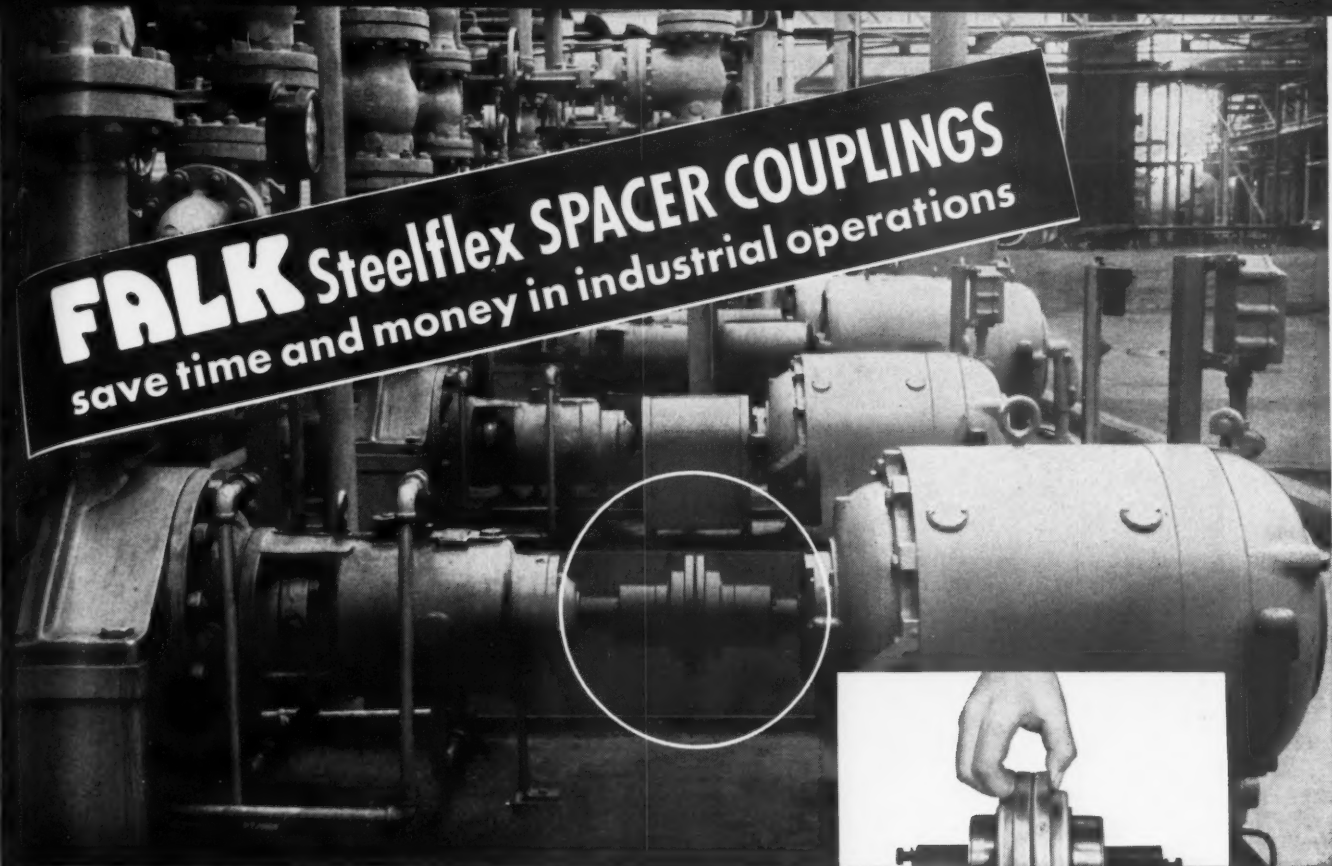
3rd: C. R. Hanam, Hughes Aircraft, Tucson, Ariz.

Honorable Mention: P. E. Watts, D. S. Kennedy & Co., Cohasset, Mass.

Honorable Mention: R. L. Drews, Boeing Airplane Co., Seattle, Wash.

FALK Steelflex SPACER COUPLINGS

save time and money in industrial operations



FALK and STEELFLEX are Registered Trademarks

Cut disconnect-reconnect time by as much as **50%**

The FALK Spacer Coupling is specially designed for quick installation or removal *without disturbing the driving or driven unit*. This feature can save you up to 50% in disconnect-reconnect time when critical equipment—a process pump, for example—needs repair or replacement.

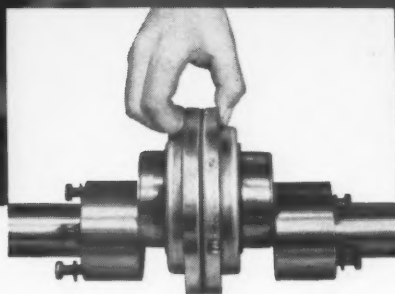
Here's another saving: with the FALK Spacer Coupling, you can quickly realign shafts *without the usual loss of operating temperature!*

And still another: you can remove or reinstall the FALK Spacer as a unit *without draining the lubricant*.

Because of its exclusive grid-groove Steelflex design, the FALK Spacer can accommodate residual misalignment—parallel, angular, or (most important) *both*. Also, it provides torsional resiliency that cushions shock and vibration. Thus it saves wear-and-tear on your connected equipment.

To prove these claims and enjoy these savings, install a FALK Spacer on one application—and see for yourself. Consult your FALK Representative or Authorized Distributor.

THE FALK CORPORATION, MILWAUKEE 1, WISCONSIN
MANUFACTURERS OF QUALITY GEAR DRIVES AND FLEXIBLE SHAFT COUPLINGS
Representatives and Distributors in many principal cities.

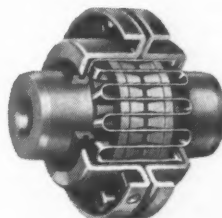


EASY AND QUICK TO INSTALL, DISCONNECT OR RECONNECT

First, mount shaft hubs to allow proper distance between hubs; then, align driving and driven units.

Second, compress Spacer to fit space between hubs and tighten cap screws to pull spacer hubs into the registered fit.

To disconnect, reverse the second step. No draining of lubricant necessary.



The heart of the FALK Spacer
...the basic Type F Steelflex
Write for Service Manual 4838

FALK

...a good name in industry

Bellows "SPOT-A-MATION" Triples Production In Drilling 2" Dia. Holes In Hardwood



Automatic machinery doesn't have to be expensive. Less than \$500.00 was required to build this drilling unit—and it paid for itself in five months.

The job was to drill and counter bore two 2" holes in a piece of hardwood used for leg sockets on an end table. Two Bellows-Locke 22A Drill Heads and a Bellows two-position Transfeed Table, with necessary switches, make up the unit. Two fixtures are mounted on the table. The operator loads a fixture, touches a button and the drills advance.

While the drilling operation is going the operator loads the second fixture. The drills retract, the Transfeed Table shifts position and the cycle repeats.

This simple application increased production from 200 parts per hour to 600 parts per hour. It is typical of the many ways in which furniture manufacturers are using versatile Bellows "Controlled-Air-Power" Devices to cut costs in a wide range of woodworking operations.

Bellows-Valvair Corp.

OF CALIFORNIA

926 Western Avenue • Glendale 1, Calif.

SUBSIDIARY OF INTERNATIONAL BASIC ECONOMY CORPORATION (IBEC)

Would you like a Wiring Diagram of this application? We'll be happy to send you full details of this drilling operation together with our bulletin "Controlled-Air-Power" in woodworking. Write Dept. W1-660, Bellows-Valvair Corp. of California, Glendale 1, Calif., for File No. 2.1-24.

1498B-2



Rust-Oleum is distinctive as your own fingerprint. Accept no substitute.



... goes on faster, stops rust, lasts longer over rust!

ONE MAN often does the work of two!

Easier to use—because Rust-Oleum 769 Damp-Proof Red Primer goes directly over sound rusted metal after scraping and wirebrushing to remove rust scale and loose rust—usually eliminating costly surface preparations. **Stops Rust**—because the specially-processed fish oil vehicle in the 769 Primer penetrates rust to bare metal—helping to drive out air and moisture that cause rust. And it's easily applied by brush, spray, or roller.

Beautifies as it protects—because the Rust-Oleum New Color Horizons System of primers and top coats includes a wide array of smart new colors that resist moisture, fumes, humidity, weathering, etc. Talk to your Chief Engineer—try Rust-Oleum on your tanks, fences, metal sash, roofs, structural steel. See how it lasts and lasts. Consult your Rust-Oleum Industrial Distributor, or write for the New Color Horizons catalog—38 pages, free!

RUST-OLEUM CORPORATION • 2530 Oakton Street • Evanston, Illinois

RUST-OLEUM®



RUST-OLEUM NEW COLOR HORIZONS SYSTEM

Over seventy colors are included in this unique new system that combines four important points: (1) The ability to Stop Rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money and metal.

STOPS RUST!®

Rust-Oleum and Stops Rust are brand names and registered trademarks of the Rust-Oleum Corporation.

Write for special report showing Rust-Oleum penetration to bare metal.





- ✓ steel castings
- ✓ iron castings
- ✓ nodular castings
- ✓ malleable castings
- ✓ closed die forgings
- ✓ pressed forgings
- ✓ extruded forgings
- ✓ hammer forgings
- ✓ upset forgings

Yes, it's all here, one call does it—for castings in a variety of metals, a wide range of forging services, dependable service and top quality.

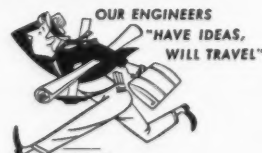
The most complete Foundry and Forge services in the West

GENERAL METALS CORPORATION

Iron & Steel Foundry
550 - 85th Avenue
Phone: NEptune 8-0130
Oakland 21, California

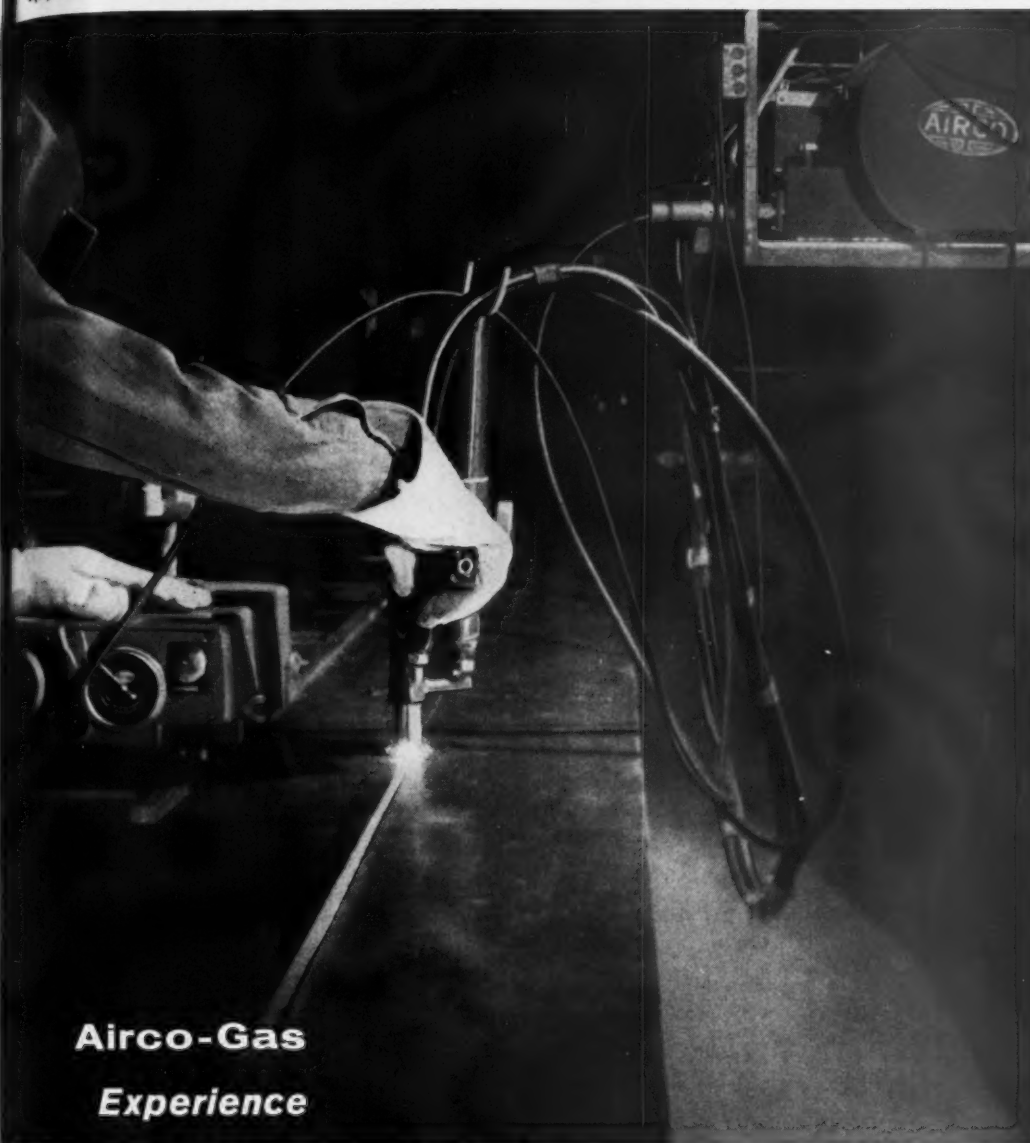
Forge Plant—Malleable Foundry
5701 So. Boyle Avenue
Phone: LUdlow 8-9163
Los Angeles 54, California

Forge Plant
Liberty & Homestead Rds.
Phone: ORchard 2-1775
Houston 1, Texas



AIRCO GAS — ARGON, IN THIS CASE — and Aircomatic®
equipment — do double duty here. An aluminum trailer manu-

facturer cuts aluminum plate to size with Aircomatic and argon
... then welds the trailer parts — with the same equipment.



Airco-Gas
Experience

**AIRCO
INDUSTRIAL
GASES**

OXYGEN
•
NITROGEN
•
ARGON
•
HELIUM
•
HYDROGEN
•
ACETYLENE
•
CARBON
DIOXIDE
•
RARE GASES

can benefit your operation, too

Working with exotic or reactive metals? Keep them tame as a puppy with Airco helium or argon. Whether you're melting, casting, welding or even arc-cutting them—they work easily under their protective blankets of Airco gas.

And remember that other Airco gases such as

oxygen, nitrogen, hydrogen, acetylene and carbon dioxide are always ready to serve your metalworking operations.

Let Airco specialized gas knowledge work for you. Call your nearest Airco office.



AIR REDUCTION PACIFIC COMPANY

A division of Air Reduction Company, Incorporated

SAN FRANCISCO • LOS ANGELES • PORTLAND • SEATTLE
Bakersfield • Burbank • Emeryville • Fresno • Inglewood
Phoenix • Sacramento • San Diego • Stockton • Tacoma

and **AUTHORIZED DISTRIBUTORS**

Western Headquarters for
Oxygen, Acetylene and Other
Gases... Carbide... Gas
Welding and Cutting Machines,
Apparatus and Supplies...
Arc Welders, Electrodes
and Accessories

... for more details, circle No. 16 on Reader Service Postcard



Alan Wood Super Diamond floor plate sheds dirt and water quickly

Sweep it, hose it or mop it—A. W. Super Diamond rolled steel floor plate has no pockets to hold dirt or water. The perfectly designed pattern of Super Diamond makes it the easiest-cleaning floor plate on the market today. You can shear, form, weld and match this floor plate wherever necessary, and the unique arrangement of the pattern allows you to bend it any place.

Super Diamond has many other advantages, too . . . an easily matched well-known design pattern . . . and readily available from warehouses. It wears indefinitely, with no chipping, cracking or splintering. And feet get traction from *every* direction, even when plates are wet.

For safety . . . for easy installation . . . for long wear . . . specify Alan Wood Super Diamond. Write for Bulletin SD-S6.



ALAN WOOD STEEL COMPANY CONSHOHOCKEN, PA.

DISTRICT OFFICES AND REPRESENTATIVES: Philadelphia • New York • Los Angeles • Boston • Atlanta
Cincinnati • Cleveland • Detroit • Houston • Pittsburgh • Richmond • St. Paul • San Francisco • Seattle
Montreal, Toronto and Vancouver, Canada: A. C. Leslie & Co., Ltd.

... for more details, circle No. 17 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960

For every foundry—best news in years!

Norton Resinoid Wheels

*Now Better
Than Ever*

Norton Foundry News

BETTER SNAGGING WHEELS!



B11 Wheels

BN Wheels

BD Wheels

Equipment and quality control in new, multi-million dollar modern — maintaining

The great new Norton Worcester Plant No. 8 was built specifically to advance the manufacture and performance of resinoid wheels — the wheels foundries need and use most.

Norton Foundry News

BIG NEW PLANT FOR RESINOID WHEELS!

Norton Foundry News



Equipment and quality control in new, multi-million dollar Plant No. 8 are ultra-modern — maintaining "Touch of Gold" performance at highest efficiency and producing resinoid wheels that remove more metal per dollar and last longer. For example:

- B11 resinoid bonded wheels have more uniform structure and better balance, assuring faster, cooler grinding, plus smoother operation. Available in sizes and types for all jobs — on your swing frame grinders and floor stands down to smallest portables.
- BN and BNA straight wheels, reinforced with glass cloth, are strong and safe, excellent for cutting and notching gates and risers. Made in thinnesses down to 1/16" and 3/32".
- BD and BDA wheels, raised hub type, glass-nylon reinforced, are ideal for many cleaning, slotting and cutting operations.

On-the-job reports of how new Norton resinoid wheels are paying off in ferrous and non-ferrous foundries are in the new report, Norton High Speed Resinoid Wheels for the Foundry, shown here. Your copy is available from your local Norton Representative . . . and is as near as your phone. Call for it today. NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.



NORTON
ABRASIVES

W-1968

75 years of . . . Making better products . . . to make your products better

NORTON PRODUCTS: Abrasives • Grinding Wheels • Machine Tools • Refractories • Electro-Chemicals — DENN-MANNING DIVISION: Coated Abrasives • Sharpening Stones • Pressure-Sensitive Tapes

. . . for more details, circle No. 18 on Reader Service Postcard

IN WAGNER GEARDRIVES...

HIGH-HARDNESS GEARS

provide greater power transmission capacity... longer wear life... greater resistance to shock



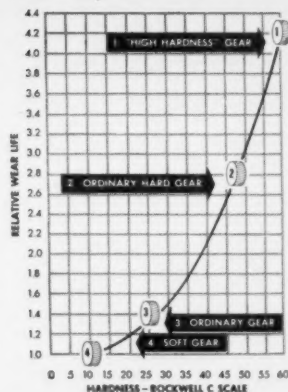
Wagner Gear Drives are built with "High Hardness" gears... made from forged blanks of alloy steel, carefully hardened *after* cutting. This special process develops file-hard tooth surfaces with tough, ductile tooth cores... maintains close-tolerance accuracy. High strength with high accuracy gives greater capacity, longer wear life than ordinary gears of the same size and weight, plus maximum resistance to shock. Table shows performance comparisons.

1. "High Hardness" gear... hardened *after* cutting. Precision processing permits maximum hardness while holding accuracy within extremely close tolerances.

2. Ordinary hard gear... hardened *after* hobbing and shaving. Hardness limited to maintain reasonable accuracy.

3. Ordinary gear... hardened *before* cutting. Hardening limited to maintain machinability.

4. Soft gear... excessive size required because of low capacity.

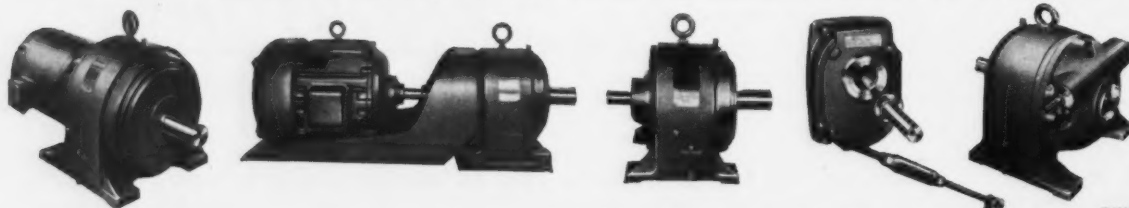


Positive, powerful, slower than motor speeds should mean one thing to you: Wagner Gearmotors. They are built to operate for years at peak efficiency. Advanced design and rugged construction with a minimum number of wearing parts, make this a certainty. Wagner Gearmotors have positive oil seals; continuous lubrication of all moving parts; extra-high capacity bearings; integral bearing housings; and rigid pyramid-mounted cast housings. Extra capacity bearings give them high overhung load ratings, too.

Wagner makes both integral-type and all-motor gearmotors, speed reducers and shaft-mounted speed reducers. They're available in single, double, triple or quadruple reductions... horizontal or vertical foot or flange mountings. Another important factor: prompt shipment. Standardized components permit immediate assembly of all standard sizes and types; you get equipment when you need it.

Want to know more? Call your nearby Wagner Sales Engineer; he will be glad to help you select the right drive for your application. Bulletin MU-227 gives full information.

Wagner Electric Corporation 6493 PLYMOUTH AVENUE, ST. LOUIS 33, MISSOURI



... for more details, circle No. 19 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

saturated

UTILITY

In the fluid world of synthetic chemicals, saturated hydrocarbons processed from petroleum are finding ready acceptance in countless new and diverse applications. One of the most notable of these versatile hydrocarbons is benzene—basic to important intermediates for plastics... basic to the production of a host of products ranging from tires to toys, from dishes to detergents.

Richfield is the first and only West Coast oil company to produce high quality benzene for sale to the chemical industry. That's because, at Richfield, progress never reaches a saturation point.

Extremely high purity raw materials for the chemical industry.

RICHFIELD OIL CORPORATION / CHEMICALS DEPARTMENT

615 SOUTH MARIPOSA AVENUE • LOS ANGELES 5, CALIFORNIA

Benzene • Toluene • Ethylene • Propylene • Propylene Dimers • Napthalene Sulfonates

Ethyl Chloride • Ethylene Dichloride • Vinyl Chloride available through American Chemical Corporation & affiliated subsidiaries.



"Exotics"

... Mysterious Metals for probing the unknown!

In metallurgical circles you're hearing more and more about EXOTICS... a mysterious group of super-alloys increasingly important in our search of outer space. Fundamental purpose of these unusual metals is *higher strength at elevated temperatures*. The variety of metals is increasing constantly, each with its own highly specialized characteristics. Contracts involving components for rockets, missiles and space-searching components will have increasing use for EXOTICS and SUPER ALLOYS in the months ahead.

KILSBY TUBESUPPLY is maintaining a close liaison between producers and users, relaying special requirements, keeping informed on new developments, improving overall availability.

If your contact with "EXOTICS" has begun—we urge you to consult our engineering and metallurgical departments for up-to-date data in a relatively unknown field.

CURRENT STOCK LIST
covering Carbon, Alloy, Stainless,
Aluminum, Aluminum Holo-bar,
completely updated!
Ask for your copy now!



Sales Representatives

Salt Lake City, Utah • EMpire 4-1921	Wichita, Kan. • HObart 4-0391
Grand Prairie, Tex. (from Dallas ANDrew 2-2679)	Phoenix, Ariz. • WIndsor 3-3035
(from Ft. Worth CRestview 5-3659)	Albuquerque, N. Mex. • ALpine 5-0500
Englewood, Colo. • SUNset 9-0521	St. Louis, Mo. • PArkview 5-4122
	Miami, Fla. • MOhawk 7-6401

Everything in Tubing—
Nothing but Tubing

KILSBY TUBESUPPLY

LOS ANGELES 22 • 2501 South Malt Avenue
Overbrook 5-7010 • PArkview 2-4000

SEATTLE 24 • 2931 E. Marginal Way • MAIn 3-6000

SAN DIEGO 6 • 5063 Harbor Drive • BElmont 9-4812

SAN FRANCISCO 2 • 760 Market Street • DOuglas 2-4968

... for more details, circle No. 21 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960



AUDIO-VISUAL UNIT

an aid to complicated assembly

Industrial firm adopts a method from the educational field and is using it to facilitate assembly of intricate electronic parts.

LONG A TOOL of the salesman and teacher, audio-visual aids are being tried in West Coast electronic manufacturing to coach assemblers in putting together complex components at reduced cost and with greater product reliability.

At Nortronics Div. Northrop Corp., Hawthorne, Calif., assemblers are participating in a pilot program using an audio-visual device that sits on the assembly bench much like a television set, which it somewhat resembles in size and shape.

The device consists simply of a slide projector and a tape recorder. By activating a foot pedal or a hand button at the end of each assembly step, the worker is presented with color slides that outline the next step. Pictures are amplified by a "script" that carefully recites each movement of hand or tool. This dialogue is piped through earphones to the operator.

In preparing sets of pictures and a script, a prototype unit is assembled by a skilled technician. During the build-up process, 35mm color photographs are taken at the appropriate time to give the most concise impression of the work being performed.

Notes are written to document the pictures and these are processed into vocal instruction that reads like the following.



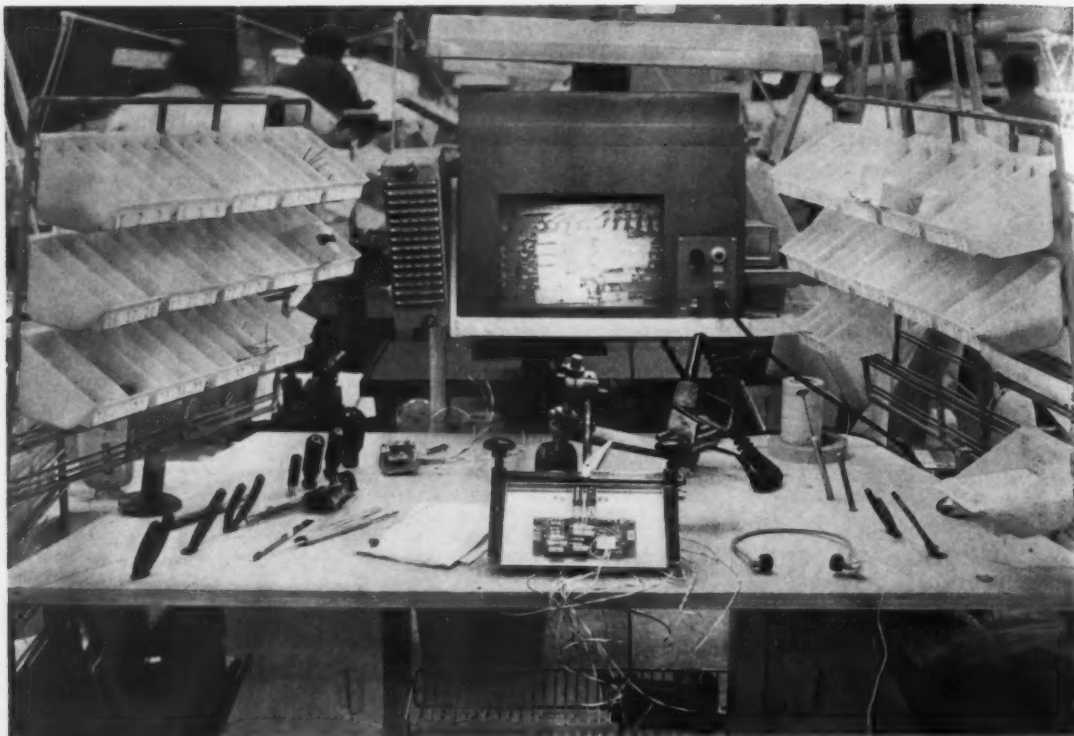
ASSEMBLING COMPLICATED PARTS this girl follows the color slide that shows correct assembly and at same time as she works is guided by hearing script that recites each movement and operation. Note earphones.

"The unit you are preparing to build is the 3-stage D. C. amplifier. The assembly number is 4136208, the version is a 501.

Orient TB01 in the chassis as shown. Mark the hole and drill one .078-in. OD hole located from the pilot hole in the tab behind the board. Mark the holes and drill two .144-in. OD holes, one on each side of the center tube clamp.

Slide the blue tubing on pins 1 and 8 of each tube, slide the green tubing on pins 2 and 7 of each tube, slide the yellow tubing on pins 4 and 5 of each tube ... and so on.

Each work station is fitted with boxes that are numerically sequenced and arranged in a logical pattern. These hold the subassemblies and the myriad of screws, nuts, connectors, wires, washers, and tubing



A COMPLETE ASSEMBLY BENCH as it is set up with the audio-visual unit. Operator places earphones on head and can change slides with foot as needed. Note numbered boxes with parts so that script can easily call for correct part by number. Handles of tools on bench lean at angle easy for grasping.

needed by the assembler. The script will refer to part location by numbered drawer.

The main advantages of the system, according to Nortronics spokesmen, is the virtual elimination of search and interpretation of blue prints by the assembler. His eyes and mind are free to concentrate on the work being done by his hands.

An analysis of performance by the pilot installation shows a number of interesting points. Supervisors report a noticeable reduction in frequency of interruptions of anyone working on an A-V unit.

Operators, all women, discouraged conversations as they were either listening to piped instruction, were concentrating on the picture, or were performing an assembly step. It was reported that some workers were so engrossed in their work that it was necessary to tap them on the shoulder at shift change. Earphones shut out noise of departing employees.

But of more value is the fact that a less sophisticated worker can be used in the program. There is no need for them to be able to recognize such electronic details such as resistor values, wire color codes, types of hardware, or technical jargon on blueprints or data sheets.

Paperwork on the supervisory level, that had been dedicated to written work plans for the employee, were virtually eliminated.

"Shop loading," in essence the ability of supervisors to know about how much time should be allotted to

complete an assembly by one or more persons, can be accomplished more readily as time values are more firmly established by the A-V system. It was found that peak operator efficiency was reached after the sixth unit.

A final, but vital point, established in an analysis of the Nortronics program was reliability. It is understandable that malfunction due to improper assembly is not unusual when workers are faced with hundreds of wires crowded into one package. But the A-V experiment reduced mechanical errors since assembly details were programmed on a step-by-step, piece-by-piece basis.

The following is a brief analysis of a three week performance cycle of the audio-visual assembly program:

A total of 57 units were assembled in 875 man hours, a saving of 652 man hours over conventional methods. Labor costs were reduced by \$2,064.25 and this figure includes all costs involved in preparing the pictures and script.

Construction costs of the five prototype A-V units was \$2,727.50 and the study concluded that after 20 more assemblies, the A-V devices would be completely amortized.

Workers reported a number of benefits including more easily comprehended instructions, less need for aid from leadmen, and ease of completing assemblies that had been started by someone else.

HANDLING SYSTEM

pays for itself

Simple relocation of bins and installation of a roller conveyor system is paying for itself in manhours saved and reduction of overtime costs. Added bonus is 90% of orders shipped the same day received.

THE INSTALLATION of a roller conveyor system and relocation of the parts bins have increased efficiency in the processing of orders at the General Electric Co. Major Appliance Division Parts Warehouse, Burlingame, California, to such an extent that the new installation is expected to pay for itself within a 14 months' period in manhours saved and a reduction of costs for overtime.

With the new system processing time for orders has been decreased from an average of 24 hours to an average of 8 hours. Now 90% of the orders are shipped the same day they are received. Not only has the system eliminated the need for overtime but it has proved that it can handle an increased volume of orders with no additional manpower. Lastly it has reduced receiving time on incoming shipments from 8 to 2 manhours per shipment.

Under this new system, parts bins cover about one-half the floor space in a large rectangular room and run parallel to each other along the width of the room. On one end of the bins a space is left open for incoming parts. Past this space running the length of the bins is a roller conveyor which is used for handling incoming shipments. On the other end of the bins close to the far wall is a roller conveyor under power. In front of this and parallel to it is a second roller conveyor on which cartons are placed and rolled from place to place for filling orders. When orders are filled the cartons are merely pushed onto the power conveyor where they are transported to shipping.

Bins have been so arranged that the most widely used parts are stored on the end closest to the conveyor in direct ratio to their use. Fast moving storage areas are color coded for easy selection.

The power conveyor ends at a point close to the shipping door. As the filled orders in cartons reach the end they are taken off the conveyor. They are packed and sealed, and when ready for shipment are placed in carts and located near the shipping door for easy pick up.

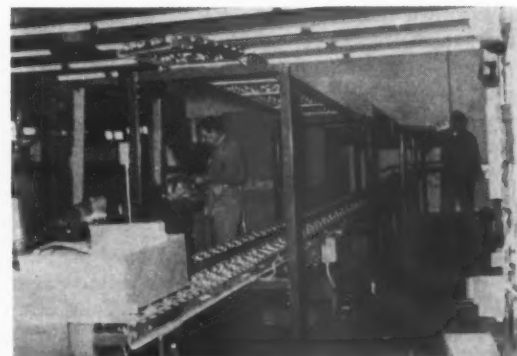
The conveyor system was designed and built by Rapistan of California. Using standard component parts and arranging them to suit provided an installation tailored to the job yet at a reasonable cost.



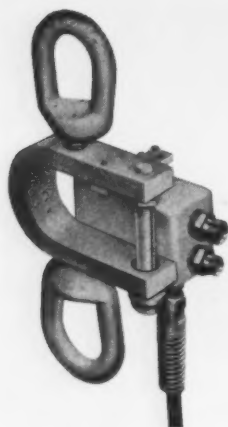
INCOMING SHIPMENTS are received at door on right not shown. Roller conveyor is used to transport shipments to approximate bin location where they are placed on floor at left awaiting unpacking and stocking in appropriate bins.



FILLING OF ORDERS is made easy. Box for each order is placed on roller conveyor nearest bins and rolled from place to place while being filled. Fast moving items are in bins nearest conveyors to save steps. When order is filled it is pushed onto power conveyor at right, which carries it to packing and shipping area.



PACKING AND SHIPPING of filled orders. As boxes reach end of power conveyor they are removed and packed for shipment. They are then placed in carts and located at nearby shipping door for easy pick up.



OVERLOAD DEVICE solves difficult foundry problem

Small unit called Dyna-Switch automatically provides the necessary accurate proportions of ingredients needed in foundry sand for successful castings.

WESTERN SAND FOUNDRY operators today are using a variety of additives to mold sand in an effort to bolster quality of casting surfaces, to eliminate hot tears, and to reduce welding and machining time.

Proper proportioning of these ingredients, among them sodium silicate binders and cellulose materials such as wood flour, is vital for casting success. Unfortunately blending problems increase with the size or complexity of the casting.

Some castings made recently in Los Angeles have bulked 33-tons each with surfaces over 70 sq. ft. in area. Costing more than \$50,000 each, they required tons of sand.

If the casting has failed in such a case, scrap recovery revenue is poor compensation. On the other hand careful weighing out of large proportions by manual labor could prove too costly in man hours.

In overcoming this problem it has been found that sand processing operations are ideally suited to automation. One Southland foundry has found the key to automatic proportioning in the Dillon Dyna-Switch, made by W. C. Dillon & Co., Van Nuys, Calif.

Basically an overload prevention device, it consists of a "U" shaped flexible beam that actuates a sensitive micro-switch at any pre-set load point within its range (some models up to 20,000 lbs.).

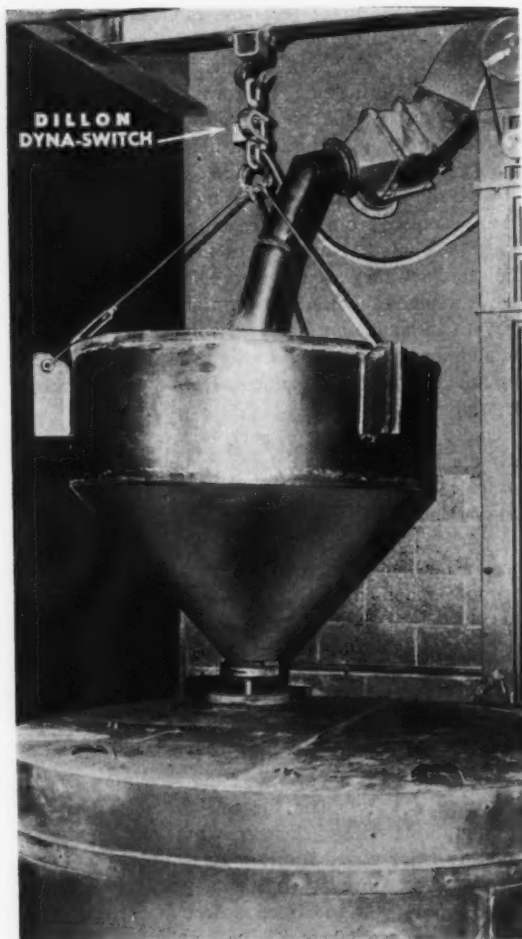
Sand is lifted to the mixing area by conveyor. This spills the sand, via pipe, into a large hopper that is suspended from overhead by the Dyna-Switch, in this case set to operate at 1000 lbs.

When the full hopper load is reached, the switch automatically opens the conveyor power circuit to stop flow of more sand.

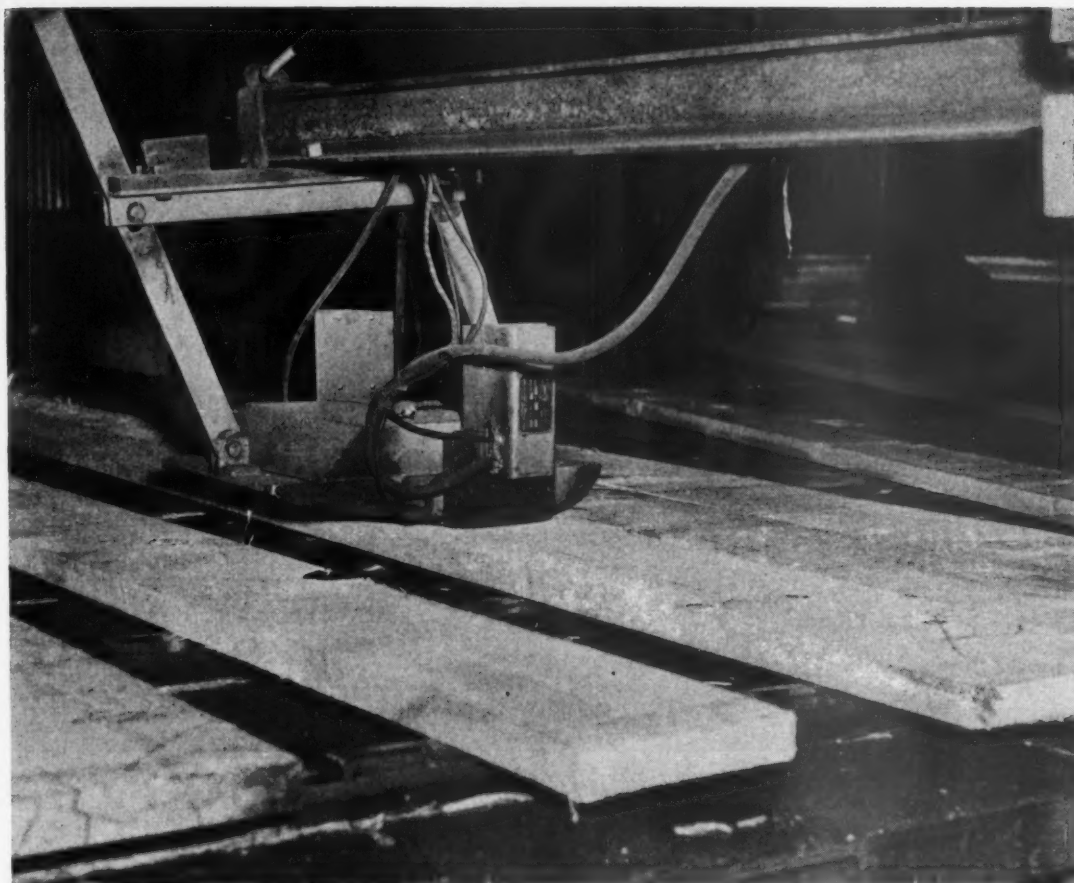
At the same time a trap in the bottom of the hopper is opened to dump contents into the mixer below. A time delay switch on the hopper trap allows complete evacuation of sand.

By this time reduced load on the Dyna-Switch causes it to start power on the conveyor and the cycle repeats itself as long as required.

In addition to governing the batching action, the switch acts as a precision scale that measures off sand in half-ton increments without supervision.



UNIT HOOKED TO overhead beam suspends hopper on rod and turn-buckle device. Dyna-Switch cuts conveyor motor when hopper contents reach 1000 lbs. Photograph at top of page is a standard model Dyna-Switch with capacity up to 20 tons. Top and bottom eye can be adjusted parallel or at right angles to "C" shaped deflection beam.



MECHANICAL DEVICE called a moisture meter used for quality control in an Arizona lumber mill. As boards pass under unit it automatically checks them for moisture content. Those too dry are marked in green ink. If too much moisture remains in board a red mark is made.

MOISTURE METER checks and grades lumber for dryness

Device in lumber yard scans boards coming from kiln.
Boards having correct dryness are passed but those too
damp or too dry are marked in different color ink.

A MECHANICAL DEVICE considered the only one of its kind automatically checks lumber coming from the drying kiln at the Southwest Lumber Mills, McNary, Arizona. The device called a Moisture Meter uses an electronic eye to scan the boards when they come from the kiln and are ready for the lumber mill yards for more drying.

As the boards pass rapidly along in the assembly line, the electronic meter marks a board with red ink, if the board has too much moisture content. It switches to green ink if the board is too arid. When

no mark is made, it means that the lumber is just right and has passed the test.

Boards that are too wet are returned to the kiln for another treatment. The too-dry pieces mean that the kiln operator must regulate his heat. Thus the device insures that the firm's finished lumber all will be uniform and correct in moisture content. This is important since the company has found that wood with excess moisture content tends to bulge and split after it has been used as part of a building. Cracking follows installation of wood that is too dry.



ROY THOMPSON, maintenance supervisor over lift trucks and batteries, adds water to one of the batteries on the bench. Hose is connected to overhead tank of distilled water and automatically tells operator when cell is filled.

FORK LIFT TRUCKS, effective maintenance procedures

This Western plant has a long and interesting record of fork lift truck maintenance. Here is how intelligent attention to details pays off in long life and reduced maintenance costs at Diamond Walnut Growers, Inc.

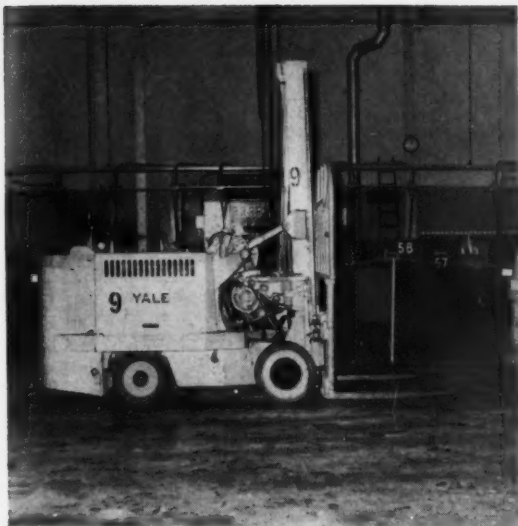
INTELLIGENT MAINTENANCE can be just as valuable to a plant as an improvement in processing or production. The maintenance of fork lift trucks and batteries at Diamond Walnut Growers, Inc., Stockton, California, is a fine example of how good judgment and attention to important details has enabled this food processing plant to achieve maximum required use of its equipment over a long period of time and at a minimum of cost.

The plant operates and has always operated a maintenance section for fork lift trucks that is separate from the regular plant maintenance department and under production. This has proven to be a distinct advantage, one that has done its part in allowing them to pile up an outstanding maintenance record. A total of 23 fork lift trucks are maintained. None have ever been replaced nor needed to be replaced. The first

truck was purchased in 1935, the last one in 1955. Battery life on these electric trucks averages an amazing nine years per battery. Maintenance costs on trucks per unit last year were \$292.14 (includes both labor and materials). This cost does not include batteries. Total cost here for labor was \$9,518.59.

It would be incorrect to say that the trucks receive hard usage throughout the year. As in most food processing plants, Diamond Walnut Growers, Inc. has a peak period. For 2½ months out of the year, all trucks are used 18 hours a day. Some six months out of the year, the trucks are run on an average of eight hours a day. The other 3½ months finds two-thirds of the trucks idle with the other third running.

This situation has been used to considerable advantage by the maintenance section. It has provided the necessary time for maintenance and the immediate



ONE OF THREE smaller trucks operated by department is this Yale 3000 lb. capacity unit. This fork lift truck was purchased new in 1947 and is still operating effectively. In background is battery section.



TYPICAL OF MOST of the lift trucks operated here is this Yale 6000 lb. electric truck. Truck in picture is one of the newer ones purchased in 1954. In the 6000 lb. class the plant runs 20 trucks of which 3 are Clark.

repair of small items before they become major. It has given them time to care for batteries, to set up a school for driver training, and to break in drivers according to the company's own rules and regulations. This time to do things plus intelligent rules plus constant supervision and following of the rules has been the secret, if there is one, of Diamond Walnut's success, in maintenance.

The plant operates 23 electric fork lift trucks. Eighteen of them are of the 6000 lb. capacity and five of the 3000 lb. capacity. Of the 23, all are Yale models, except three of the 6000 lb. class, which are Clark trucks. Seven trucks were purchased in 1935, one each in 1939 and 1943, two in 1947, three in 1948, one

each in 1949 and 1950, three each in 1952 and 1954, and one in 1955. All of these are still running and in good condition.

The maintenance department has made two modifications on the trucks. In 1947 all trucks were modified from a drum type controller to the newer cam-o-tactor speed controller. Previous troubles caused by the earlier model controller were completely eliminated by this modification. A second modification, some years ago, was the replacement of a cast iron grid resistor, with a stainless steel one.

Fork lift trucks are a separate department under production at Diamond Walnut. The department has its own foreman and maintenance, and drivers are

TRUCK AND BATTERY OPERATIONS FEBRUARY 1, 1959 TO JANUARY 24, 1960

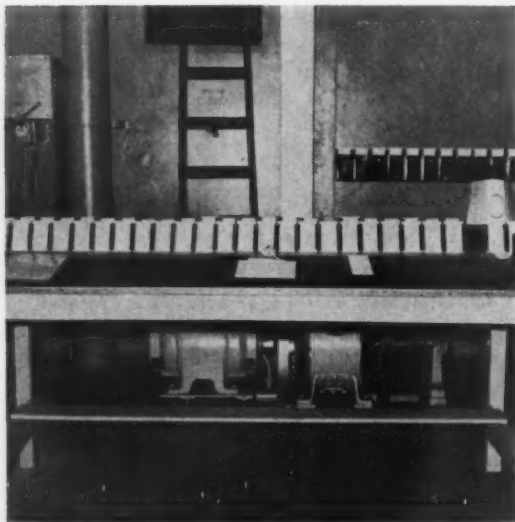
	Trucks		Batteries	
	Labor	Materials	Labor	Totals
February, 1959	\$ 541.60	\$ 500.93	\$ 513.20	\$ 1,555.89
March, 1959	309.32	102.34	872.65	1,284.31
April, 1959	133.78	356.23	643.74	1,133.75
May, 1959	310.86	334.33	302.25	947.44
June, 1959	82.23	91.31	728.85	802.39
July, 1959	97.47	326.07	885.80	1,112.34
August, 1959	220.00	204.16	803.00	1,227.16
September, 1959	220.00	432.86	803.00	1,455.86
October, 1959	480.00	391.75	1,463.00	2,334.75
November, 1959	480.00	86.55	1,583.00	2,149.55
December, 1959	350.00	488.98	590.00	1,428.98
January, 1960	220.00	355.50	330.00	905.50
	<u>\$3,058.26</u>	<u>\$3,671.01</u>	<u>\$9,518.59</u>	<u>\$16,337.92</u>

given an intensive instruction on the way the company expects them to drive. When drivers are hired, even though they have had previous experience, they are not considered trained. New drivers are supervised carefully and no mishandling of trucks is allowed. The foreman is constantly on the move throughout the plant, supervising all drivers. He operates on a bicycle, since it allows him to get from place to place in the large plant quickly and easily. This provides "on the spot" supervision of drivers and trucks during the time they are working.

The fork lift maintenance section varies in size from one to four men per day as needed. At busy times, one man handles maintenance, two men are in the battery section, and the maintenance foreman checks on trucks in the shop and in the plant. He often spots trouble in this way, even before the driver. In slack times, the maintenance section is cut to as few as one man per shift.

During the plant's busy season, trucks are run 18 hours a day. Therefore, when work is required, over and above ordinary lubrication and maintenance, this is noted, and if possible, the work is deferred until spring, when there is plenty of time to do it. The maintenance section carries a spare set of wheels with tires already pressed on. These are used when needed to save truck down time, especially during the busy months. There has been a problem in the plant with tires pulling loose from the wheels on fork lift trucks. Walnut oil is extremely hard on rubber.

Major maintenance repairs have been few at Diamond Walnut. In 1945 the maintenance section had a problem with the drive differentials on some of the trucks. There has never been any trouble since. About twice a year, a brush sticks, or a commutator



INDIVIDUAL BATTERY RECORDS are kept on all batteries. Desk in battery section contains records. Each card contains space for noting reading of each cell, and a new card is made every time the battery is equalized.

RULES AND REGULATIONS LIFT TRUCK OPERATIONS

Only authorized drivers who have been trained in the safe operation of lift trucks shall operate such vehicles as have been designated. Trainees may be authorized as truck operators provided they are supervised. This period of instruction is the only time during which a rider is permitted on a truck.

Each driver must sign in and out on the Daily Lift Truck Log Sheet at the Battery Bench. Before operating his truck he shall check it for safety and mechanical needs. If it does not pass his inspection, a report should be made immediately to his supervisor or foreman and the truck shall be removed from service for repairs. At the end of his shift or assignment the driver shall return the truck to the Battery Bench or specific parking area.

A driver shall report to the Battery Bench as soon as possible after he has been paged. Battery Bench personnel should be notified in advance when trucks are to be used for other than regular shifts or regular work.

Operate lift trucks at a safe speed and at a safe distance from other trucks, etc. Be alert for pedestrians. The horn should be sounded at all blind corners and doors.

Loaded pallets shall be made secure before they are moved. The forks shall always be carried as low as possible. Dirty pallets are to be hauled immediately to the cleaning area.

Drivers must not place materials where they will block fire extinguishers, passageways, or doors.

When a truck is left unattended, the driver shall pull the electric plug, set the brakes, and leave the forks in a down position. If parked on an incline, the wheels shall be blocked.

Stunt driving and horseplay is strictly prohibited. Riding on the forks is forbidden. There shall be absolutely no drinking of intoxicating liquor. Subject to immediate dismissal.

Under no circumstances are lift trucks to be used as work platforms unless the platform on which the worker is raised has proper hand rails and toe boards and is properly fastened to the lift truck.

burns out. For this reason, a spare motor is kept on hand for replacement. Also stocked for possible emergency is a spare rear end that will fit six of the trucks, a spare hoist motor and a spare hoist transmission. A full supply of brushes for both types of trucks are stocked plus controls for all units. Maintenance keeps a fairly large stock of parts on hand, but seldom has to use them.

Maintenance personnel at Diamond Walnut are particularly attentive about three things. Every 2½ hours that a truck is working, its battery is checked, and checked by the maintenance people. The driver has no control over this. Maintenance personnel also pay close attention to the truck motor commutators and brushes. They consider that timely adjustment and/or replacement of brushes is one of the secrets to the long life of an electric truck motor. A set of brushes usually lasts about two years. The third point checked is for minor details and repairs. All minor repairs are made immediately so that small items are not allowed to become major repairs.

Diamond Walnut is extremely particular when it comes to batteries. Their previous maintenance foreman was an expert on batteries, having learned his trade in submarines. Through the years, the firm has learned much about batteries and how to get the most out of them. This is one of the reasons why they are

**STAINLESS
STEEL**

CALL

ENCO

**YOUR MOST
CONSCIENTIOUS
SOURCE FOR**

STAINLESS STEEL

YOU'LL LIKE doing business with *ESCO* representatives—for their job is to help you meet your stainless requirements. And, regardless of product or process, *ESCO* can supply everything you need in stainless; stock items, mill products and special castings.

YOU'LL LIKE the convenient stocks of stainless, whether it's sheet, plate, tube, pipe, bar, rod, wire, billet, valves, fittings, fastenings or PVC—the stainless steel of plastics.

YOU'LL LIKE the dispatch with which orders are handled and the promptness with which they are shipped from nearby warehouses.

YOU'LL LIKE *ESCO*'s complete laboratory facilities and metallurgical know-how that can help solve your special problems.

YOU'LL LIKE the *ESCO* research data and manufacturer's data that is available on stainless steel alloys.

YOU'LL LIKE calling your nearest *ESCO* warehouse:

CALL



LOS ANGELES 22, CALIFORNIA
6415 E. Corvette Street... **RAYmond 38601**

SAN FRANCISCO BAY AREA
Emeryville 8, California,
1280 65th Street... **OLympic 4-2732**

PORTLAND 10, OREGON
2141 N. W. 25th Avenue... **CAPitol 8-2141**

EUGENE 4, OREGON
1464 W. 6th Street... **DIamond 3-2585**

DENVER 7, COLORADO
3940 Grape Street... **FLorida 5-2349**

SEATTLE 4, WASHINGTON
1131 W. Hanford Street... **MAIn 3-4160**

SPOKANE 13, WASHINGTON
N. 1327 Washington Street... **FAirfax 5-4507**

HONOLULU 5, HAWAII
630 South Queen Street... **6-6186**

ESCO LIMITED, VANCOUVER, B. C.
8425 Ontario Street... **ELgin 2288**



LUBRICATION of fork lift trucks is on a regular schedule. Here one of the trucks is located on hydraulic hoist prior to receiving its scheduled lubrication. Note work bench and maintenance equipment in background.

able to get an average life of nine years from a battery.

The company buys both Gould and Exide premium batteries of the 18 cell, 38 volt, 500 to 720 amp. hr. types. They feel that the 720 amp. hr. battery is more economical from a use standpoint, even though it is more expensive. For the three smaller trucks, a 12 volt battery is used. The firm has 12 spare batteries on hand at all times. Trucks doing light work use the older batteries, while those doing heavy work are given the newer ones.

Every 2½ hours of use, the battery on each truck is checked in the plant. When the battery needs changing, the truck is called in immediately by means of the public address system and the battery changed. Battery records are kept on individual charges, one for each battery for each charge. The record also tells when that battery went out for use. Information includes truck number, battery number, time, date, specific gravity, temperature, and the number of amps. when it went on charge. Batteries are equalized every two to three weeks and a record is kept on this.

The battery section's equipment includes four motor generator sets, two Westinghouse, two Electric Products that produce 30, 27, 30, and 15 kw. This provides a total of 99 kw and 2250 amps. The personnel are able to run a discharge test to discover weak

cells in a battery, by using a bank of resistors on the discharge panel that can discharge at any given rate. Many times they are able to juggle good cells from an old battery and make up another either large or small battery from one or more older batteries.

The battery water system is well planned. Using an overhead tank, water is added twice daily by the battery operator, who checks and fills all the batteries on the bench. Correct filling is facilitated by a light on the filling device that lights when the cell is filled.

The personnel at Diamond Walnut have discovered that the most important thing to guard against in batteries is heat. When the slightest indication of heating appears, corrective action is taken immediately. Also they never allow a battery to sit over the weekend in a discharge condition, because of the sulphates which it produces, which are harmful to battery life.

It takes three minutes to change a battery. A mechanical type hoist is used. Changing batteries is expedited, since the battery bench bed has been made the same height as the truck bed, and very little lifting is required.

No matter whether it's batteries, general fork lift truck maintenance or driver training, in this plant the problem has been studied and a reasonable and inexpensive solution found. At Diamond Walnut they are proving that intelligent maintenance pays off.



SUNNYVALE, CALIF.—3-ton Cleveland Tramrail motorized push-button-operated crane in 50' x 230' prefabricated building



of Westinghouse Electric & Manufacturing Co. Large pipes and heavy bars are easily handled in and out of storage by one man.

FOR HARD SERVICE APPLICATIONS

Western Industry ACCLAIMS Cleveland Tramrail

Hundreds of Installations are now Profitably Serving Aircraft—Automotive—Canning—Chemical—Foundry—Glass—Lumber—Machinery—Mining—Paper—Printing—Rubber—Shipbuilding—Steel Producing—Steel Fabricating—Warehousing—and Other Industries in the West

Write for free Engineering and Application Booklet No. 2008. Packed with valuable information.

WESTERN CLEVELAND TRAMRAIL REPRESENTATIVES

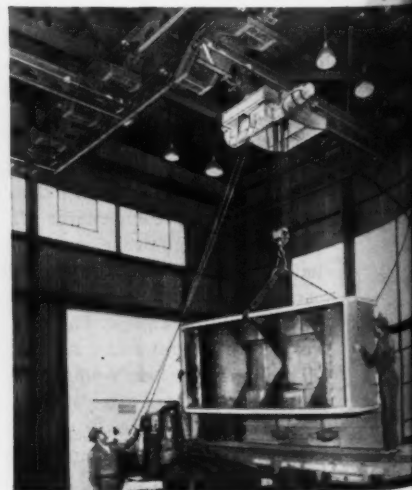
Cleveland Tramrail California Co. 6435 Corvette St. Los Angeles 22, Calif.	Cleveland Tramrail California Co. 870 Market Street San Francisco 2, Cal.	Cleveland Tramrail Denver Co. 1700 Fifteenth St. Denver, Colorado
Cleveland Tramrail Northwest Co. 300 Michigan St. Seattle 8, Wash.	R. B. Rees & Co. 334 W. 17th So. Salt Lake City 15, Utah	



CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 8843 E. 290 ST. • WICKLIFFE, OHIO

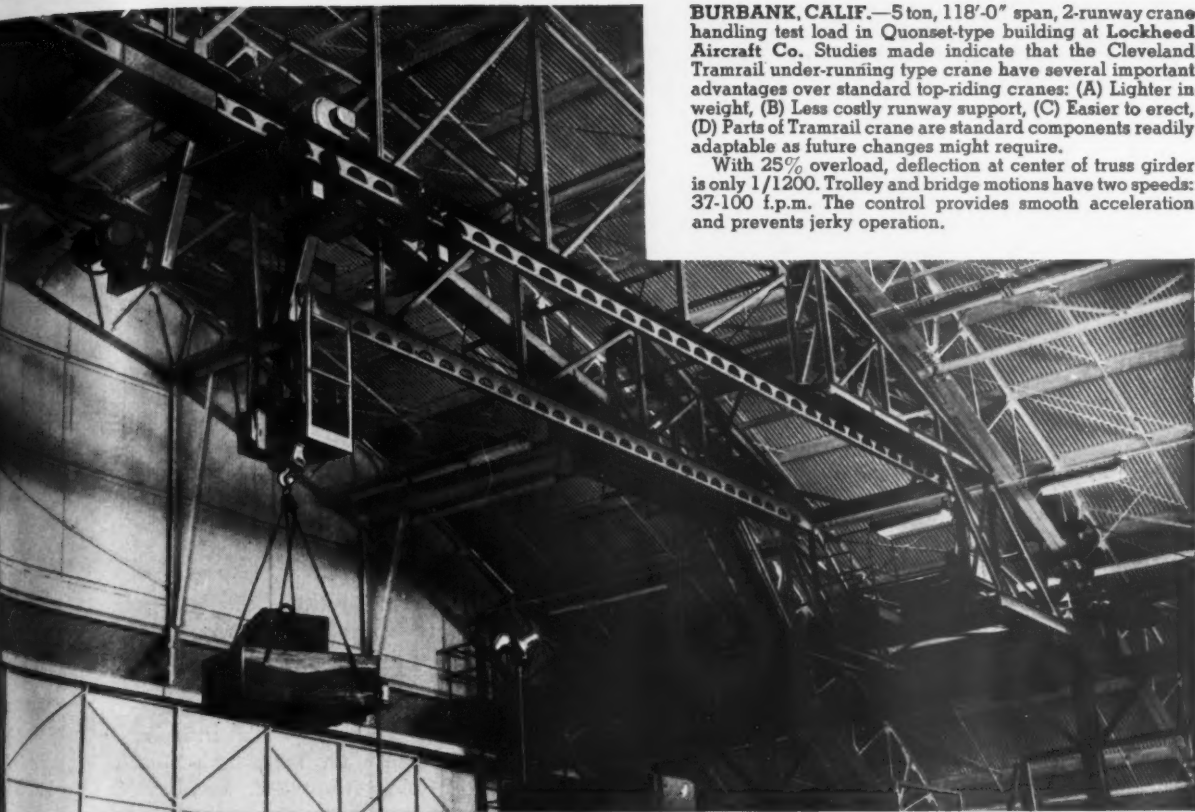
SEATTLE—Canneries in various parts of the country are speeding production and reducing worker fatigue with Cleveland Tramrail. Illustrated is a simple track loop that serves 10 retorts at **Washington Farmers Co-op Association**. This system has been in service since 1946. Canning efficiency is higher because retorts are loaded and unloaded quickly with the Tramrail equipment, keeping "down time" of the retorts to a minimum.

DENVER—For 65 years **The C. S. Card Iron Works Co.** has specialized in the building of mine cars. In 1953 they installed two parallel crane runways in their fabricating shop. Each runway has four transfer cranes. Four electric hoist carriers, two of 5-ton and two of 3-ton capacity, serve all eight cranes. The Tramrail system was designed to enable a load of 16 tons being handled by four cranes. The distance from floor to runway track is 25 feet. Despite this great height, the cranes are propelled by hand, which is evidence of their smooth, easy operation. The photo shows one of the cranes loading a truck.



BURBANK, CALIF.—5 ton, 118'-0" span, 2-runway crane handling test load in Quonset-type building at Lockheed Aircraft Co. Studies made indicate that the Cleveland Tramrail under-running type crane have several important advantages over standard top-riding cranes: (A) Lighter in weight, (B) Less costly runway support, (C) Easier to erect, (D) Parts of Tramrail crane are standard components readily adaptable as future changes might require.

With 25% overload, deflection at center of truss girder is only 1/1200. Trolley and bridge motions have two speeds: 37-100 f.p.m. The control provides smooth acceleration and prevents jerky operation.



LOS ANGELES—Layne & Bowler Pump Company, one of the largest pump manufacturers in the West, handles much of their work in process with Cleveland Tramrail cranes. Spray painting is one of the jobs that is speeded with a crane because heavy parts can be brought into the spray booth, held while painting and removed from the booth without being detached from the crane hook. The crane illustrated is hand-propelled with a two-ton electric hoist, operates on three tracks and has a span of 50 feet.

... for more details, circle No. 23 on Reader Service Postcard

DEGREASER COVER rolls back, is easy to handle

Lightweight cover rolls back allowing quick easy access to degreaser. When in place cover will reduce evaporation of expensive solvents.

WASTEFUL AND COSTLY evaporation losses of degreasing solvents have long been a headache to plant managers involved in metal finishing operations.

To block evaporation loss of expensive solvents covers have been installed to cover sumps. But many covers proved bulky, heavy to lift, and if detachable there was often a storage problem. It was found that hard-to-handle covers were often left off.

To help solve solvent loss problems Baron Industries, West Coast manufacturer of vapor spray degreasing equipment, has developed a new roll-type cover that attaches to vapor spray degreasers of every size and manufacture.

The Baron "Econ-O-Lid" is permanently mounted to the top of the degreaser and is operated at finger pressure as the lid rolls across the sump to completely open or closed position. Solvent vapors are entrapped and the need for constant checking and replenishing

of solvents to maintain proper levels is eliminated.

When unrolled, the lid exposes the entire work space. Field tests showed that operators, who normally left degreasers open, used the new cover to lower solvent loss via evaporation by 30% to 60%, sometimes more.

For example, a major west coast air and missile frame manufacturer used 11,130 gallons of Trichloroethylene during 1958 in one vapor degreaser. Cost per gallon is \$1.675.

After incorporation of the Econ-O-Lid, 1959 consumption dropped to 7750 gallons, a saving of 3380 gallons resulting in a dollar saving of \$5661.50, approximately.

Lids are made of tough, specially coated material, that is solvent resistant, especially to all trichloroethylene solutions. Standard widths range from 24-in. to 42-in. and lengths from 3-ft. to 10-ft. Lids come in kit form and can be installed by plant personnel.

WITH MINIMUM OF TIME AND EFFORT cover is rolled back to give full access to work area. Unlike solid covers flexible lid does not take additional machine space. Cover over sump reduces solvent loss via evaporation.



NEW!



Universal Molding Company Will Introduce You to the Best and "Easiest to Use" Blind Rivet!*

... that can save your company thousands of dollars and hours! Also ideal for the professional craftsman and hobbyist.

POP RIVETS® ARE INSTALLED AND SET FROM ONE SIDE, AS EASY AS . . .



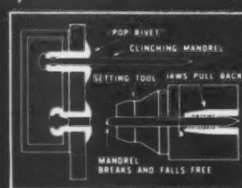
1 insert rivet



2 insert into hole



3 squeeze gun



Here's how it works

This all-purpose blind rivet will reduce your assembly costs because just one worker is needed and no back-up is required. Even hard-to-get-at area problems are solved because this light weight easy-to-use hand tool inserts and sets the rivet from the same side. POP Rivets eliminate the cumbersome job of taking the work to the tool, and POP will fasten all materials . . . metals to metals, metals to plastic, plastic to plastic, etc. The rivets are available in various metals and a wide range of sizes. Regardless of your current method of fastening, whether it's old-fashioned bolts, screws or solid rivets it will pay you to try POP Riveting*.

* NEW INTRODUCTORY KIT.....ONLY \$19.95

With this kit, management or design engineers can inexpensively experiment with simplified product design, study vibration effects, clearances, etc. Production men can try assembly-line changes on the spot and time study analysts can make direct installation comparisons. Kit contains everything needed . . . assortment of rivets, rivet gun, instructions and idea materials, as illustrated above. Kits are especially assembled for various types of industry. Please indicate your business category in the coupon when ordering.

SEALS LIQUIDS AND GASES!

New "Closed-End" rivet seals and resists pressures up to 500 lbs. p.s.i. and can also be set with simple hand tools.

UNIVERSAL HAS THE LARGEST INVENTORY AND MOST COMPLETE SERVICE CENTER IN SOUTHERN CALIFORNIA

Inventory includes power and pneumatic tools and other accessories needed for high speed production or special requirements.



Universal

Leader in Quality,
Progress and Service

MANUFACTURERS AND SUPPLIERS OF THESE PRODUCTS
AND SERVICES TO INDUSTRY:

SCREEN FRAMES, HARDWARE AND COMPONENTS • POP RIVETS •
WEATHER STRIPPING • TRAILER MOLDING • ALUMINUM DRIVE
SCREWS • ANGLES, CHANNELS AND TUBING • ROLL FORMING,
INCLUDING ENGINEERING, TOOLING AND PRODUCTION

UNIVERSAL MOLDING CO., DEPT. W60 NEvada 6-9721
10807 Stanford Ave., LYNWOOD, California

- ☐ Check enclosed for.....Pop Rivet Kits, \$20.75* ea. Prepaid.
- ☐ P.O. enclosed for.....Pop Rivet Kits, \$20.75* ea.
- ☐ Please also enclose information about "Closed-End" Rivet.

Name Title

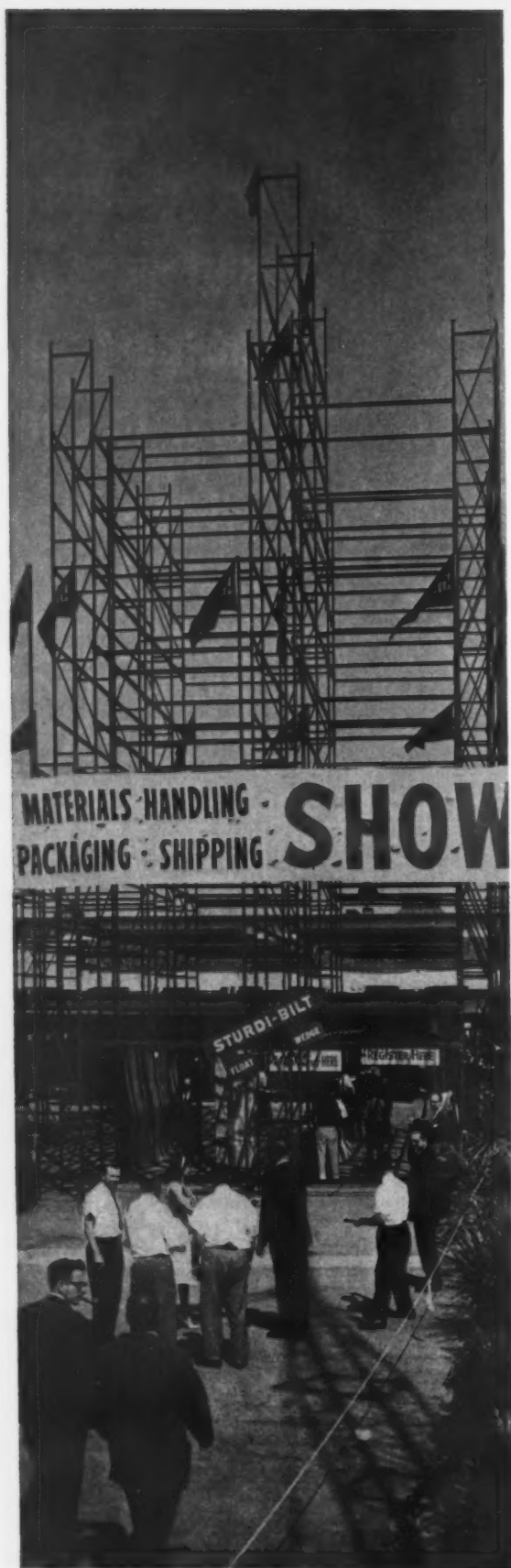
Company Name

TYPE OF BUSINESS

Address *Incl. St.

City State Sis. Tax

... for more details, circle No. 24 on Reader Service Postcard



PICTORIAL REVIEW

Material Handling Show

Pictures of booths and exhibitors at the 3rd Western Material Handling Show and Packaging Cavalcade

THE THIRD WESTERN Material Handling Show and Packaging Cavalcade was held in Los Angeles on May 11-13. Visitors saw some \$75,000,000 of material handling and packaging equipment of 600 manufacturers. Many of the larger exhibits were outside and used the space around the Great Western Exhibit Center for demonstration purposes.

The Show attracted sizeable crowds during the three days it ran and exhibitors commented upon the fact that so many high level personnel from Western plants attended. Coupled with this was the noticeable seriousness of visitors, their interest in new ideas, and willingness to purchase equipment. Some exhibitors expressed surprise at the number of on-the-spot sales made.

During the Show a Fork Lift Truck Rodeo was held and the winner announced on the last day. Winners of the national SPHE Packaging Contest were presented their awards at a banquet held in conjunction with the Show and the prize winning entries were displayed at the Show. Technical conferences were held at the Chrysler Training Center in Anaheim on May 11 and 12 and dealt with aspects of material handling and packaging. For information on these see articles in the Western Meetings Section of this issue.

SHOW ENTRANCE was marked by this "Skyscraper" erected by Sturdi-bilt Div., Union Asbestos and Rubber Co. as a means of demonstrating the versatility of adjustable storage rack component parts. Here visitors walk under structure on way to registration booth.

THERE'S A REAL DIFFERENCE IN SAFETY-SWITCH SAFETY!



The *real* difference in safety . . . and the difference is *very* real . . . lies in switch performance under electrical load. You can spot this difference instantly when you compare the action of Bulldog Vacu-Break® Safety Switches.

When you operate Vacu-Break Safety Switches under load, there is no blinding flash, no dangerous arc "explosion". The exclusive Vacu-Break design double-breaks the circuit, confines the arc within the enclosed switch head, smothers and extinguishes it instantly. Maintenance of contact points is virtually eliminated, and *you don't have to open the switch-box door to know the contact is broken.*

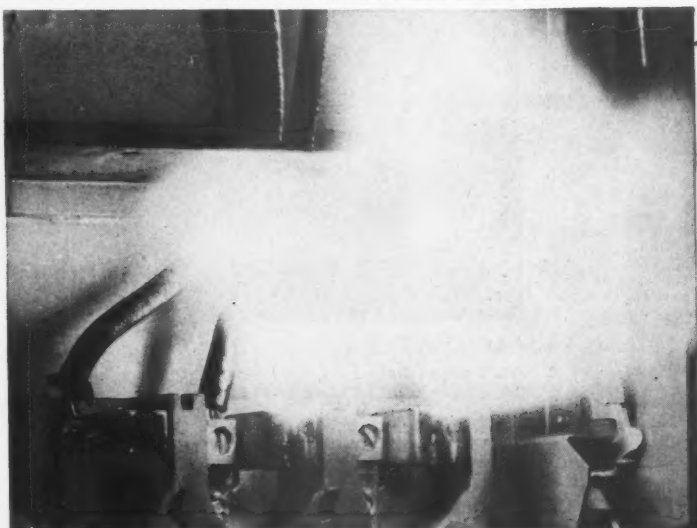
Unretouched photographs of the arc in 100-Amp 600-volt switches operating under 90-Amp 440-volt load with 40% to 50% power factor. Pictures taken at instant of break.

The **operating handle** is connected directly to the Vacu-Break heads. Push the handle "Off" and contact is broken positively every time. There are no toggles, triggers or springs to depend on. You know the switch is "Off" without looking.

Clampmatic® assembly gives clamped pressure contact, speeds "break". This means positive, safe operation, and long, trouble-free switch life. In safety switches, the *real* difference in safety lies in design and performance. Compare Bulldog Vacu-Break Safety Switches with other types, and then see the difference!



Vacu-Break Safety Switches confine dangerous, destructive arcs inside arc chambers, and smother them instantly.



Open knifeblade switches permit arc "explosions", burning and pitting contact points. The result—fire hazard and switch damage.

Cutaway of Vacu-Break switch head, showing movable contact slug inside arc-smothering closed chamber. Clampmatic spring assembly gives bolt-tight contact, speeds "break", increases switch life.

Bulldog Electric Products Division, I-T-E Circuit Breaker Company, Box 177, Detroit 32, Michigan. In Canada: 80 Clayson Rd., Toronto, Ont. Export Division: 13 East 40th St., New York 16, N.Y.

For Safety's Sake—Buy Vacu-Break



**BULLDOG ELECTRIC PRODUCTS DIVISION
I-T-E CIRCUIT BREAKER COMPANY**

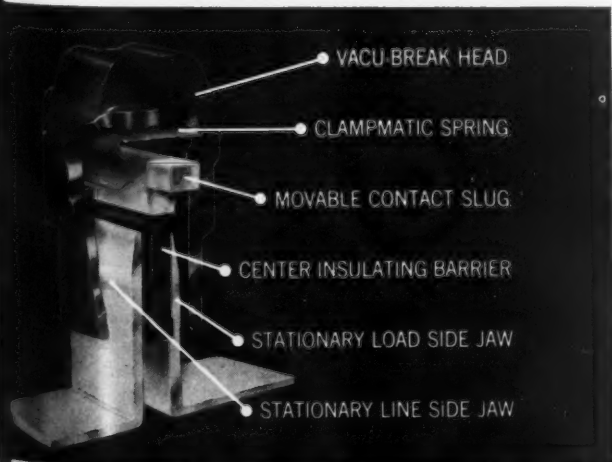
Consult the following Pacific Coast representatives:

Coast Electric & Manufacturing Co.
1733 N. E. Seventh Ave., P. O. Box 7866
Portland 12, Oregon

Safety Switchboard Company
910-89th Avenue
Oakland 21, California

Young Electric & Mfg. Co.
2134 Curtis St.
Denver 2, Colorado

Bulldog Elec. Prod. Co. of Los Angeles
2885 E. Washington Blvd.
Los Angeles 23, California





DEMONSTRATING the Transveyor "Crab" truck is Automatic Transportation representative. Demonstrations were held at booth every 15 minutes to show truck's versatility.



SHOWING HOW IT WORKS to a visitor is W. A. Rundquist, center, sales promotion manager, Standard Conveyors, and Rolf Donahower, right, engineering representative for Standard.



FLOORS GET PROTECTION from this phenolic resin wheel held by Don Foster, left, and Thomas A. Watson, Darnell Corp. Ltd., Downey, Calif.



W. A. KRIEGER, American Airlines cargo sales, reads a copy of *WESTERN INDUSTRY*'s April issue, which contained a 10-page feature section on the show.



PAPER STRAPPING is used on box by Chapin Hunt, in charge of Product Development, Zellerbach Paper Company. One of the company's newest products item can cut closure costs up to 50%.



PRETTY MODEL shows ease of handling of Hyster's new Space Saver lift truck line. Starting, stopping and maneuvering is safe and simple with Monotrol control system.

HALLOWELL SHOP EQUIPMENT

Rugged, functional, versatile...
custom in everything but price!

OPEN BENCHES



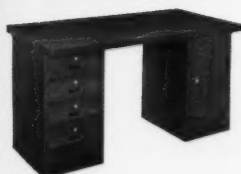
Arrangeable, changeable, economical. Rugged construction. 4 leg heights, 4 top materials, 4 lengths, 5 widths—the widest selection in the industry. Choice of top and base accessories.

CABINET BENCHES



Functional, good looking, plenty of protected storage space. 3 lengths, 4 top materials. Many interchangeable accessories.

UNIT BENCHES



Wide variety of arrangements and accessories. Versatile, interchangeable drawer or cabinet pedestals. 2 lengths, 2 widths, 2 heights, 4 top materials.

SHOP DESKS



Large, smooth writing surface. Drawers glide on bearings. Recessed pulls. Three standard models, plus K.D. parts for custom assembly.

STOOLS and CHAIRS



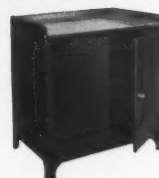
Great variety. Set-up or K.D. Fixed or adjustable heights. Tubular or channel legs. Steel or Presdwood and steel seats—round or contoured—revolving or stationary. Optional foam rubber seat and backrest covers available.

TOOL STANDS



Built to take a beating. Four sizes, with drawers, trays, cabinet bases. Drawers in single or double tiers. Available with steel or rubber casters.

INDUSTRIAL CABINETS



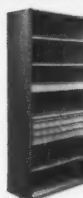
Floor, wall and caster models. Safe, neat storage. Flush bases, detachable feet. Steel or rubber tread casters. Six sizes from 21 to 75 in. high.

STORAGE WALLS



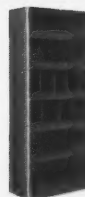
Use individually or stack to form storage walls or partitions. Units available with 12, 16, 18, 24 or 32 drawers.

ERECTOMATIC® SHELVING



Exclusive features cut assembly time. Each shelf can be independently positioned. Stores up to 20% more in the same space. Interchangeable parts and accessories.

STEEL SHELVING



Use basic units individually or in combination. Ledge, counter and vertical types. Multiple pierced, precision formed for easy assembly.

MAIL COUPON TODAY

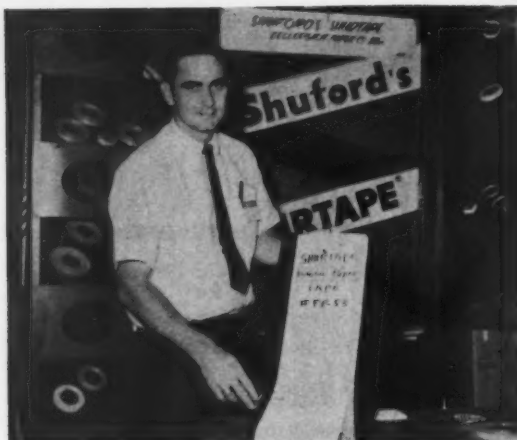
COLUMBIA-HALLOWELL Division SPS Jenkintown 86, Pa.
Please send me the Full Line Columbia-Hallowell Shop Equipment Catalog.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

COLUMBIA-HALLOWELL Division

SPS
where reliability replaces probability

JENKINTOWN PA • SPS WESTERN, SANTA ANA, CAL.



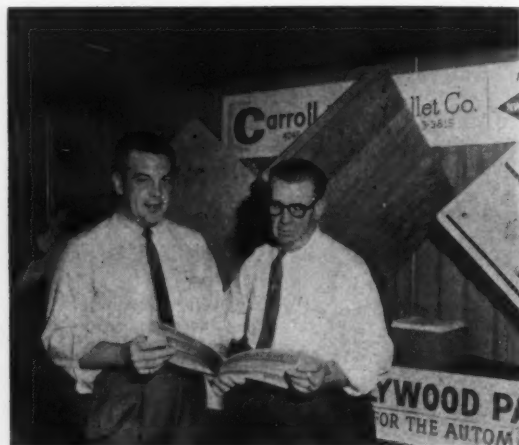
FRED DALE JR., Field Sales Representative for Shurford Mills, Inc., demonstrates Shurtape, a protective covering for finished or polished surfaces during shipment or storage.



GIVING EXHIBITION of new Naro-Aisle-Stack fork lift truck by Towmotor is Ernest "Red" Gadberry, District Supervisor Southwest Area. Note extended outrigger for stability.



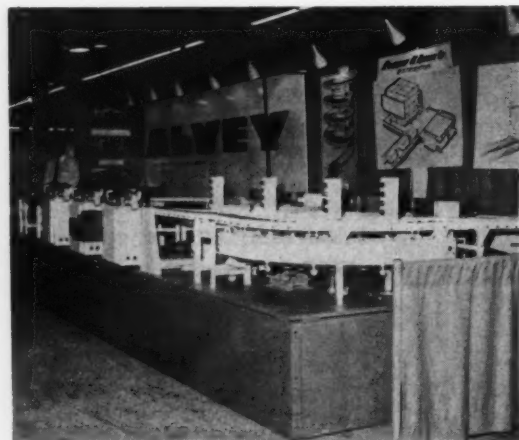
BILL TUTT of Industrial Battery & Engineering holds cable of 36 volt, 21 plate industrial battery used for mobile material handling equipment, industrial power.



IN HUDDLE OVER Dura-Block pallet brochure are John T. Lewis, vice president, and R. D. Cave, vice president, sales, Carroll Box and Pallet Co.



SITTING AT WHEEL of the Westcoaster made by Borg-Warner is Dick Hearn, Westcoaster sales manager, with Ed Sullivan, Equipment Engineering Services, distributor of the vehicle.



AUTOMATIC DISPATCH of cartons in accordance with pre-determined code marks on side of each package is highlight of this Alvey Conveyor Mfg. Co. conveyor demonstration.

TOWMOTOR-GERLINGER

*offers you three complete
capital-saving services!*

1 YOU LEASE *without down payment!*

You don't make a *down payment* when you use the Towmotor-Gerlinger Lease-A-Truck Plan. You put T-G equipment to work on a continuous, year-'round basis. You just make a small monthly payment—paid out of savings the equipment produces.

2 YOU RENT *without cash outlay!*

You don't tie up working capital when you *rent* Towmotor-Gerlinger fork lift trucks and material carriers. You put them to work immediately. You start cutting handling costs immediately. Your only cash outlay is one small monthly charge.

3 YOU BUY *and save as you pay!*

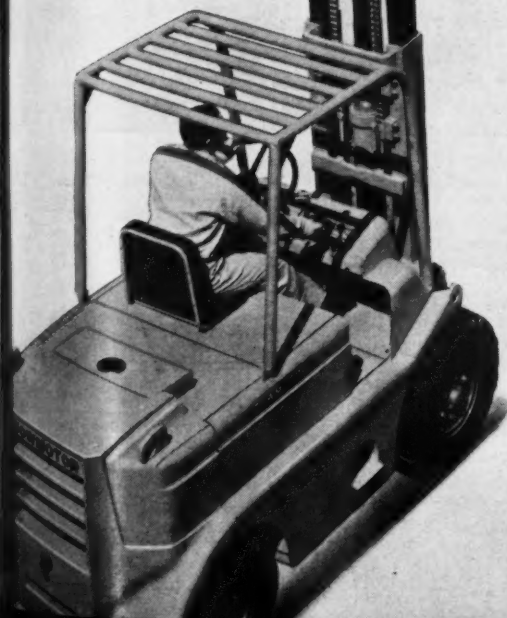
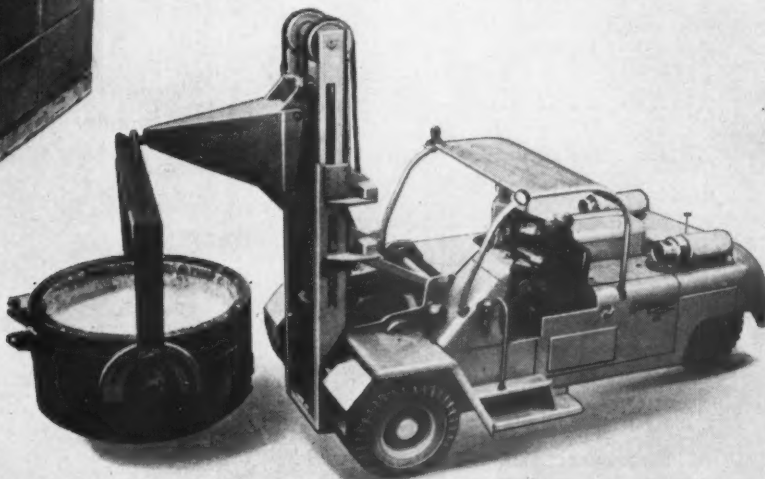
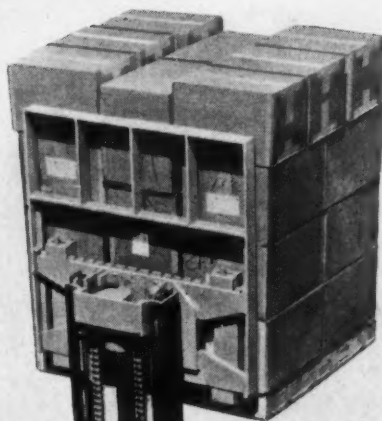
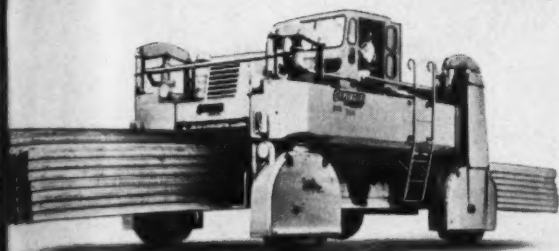
You don't pay cash for Towmotor-Gerlinger equipment when you use our low-cost Time Payment Plan. You make reasonable monthly payments. Low interest rates make it easy. Handling economies consistently pay the monthly cost many times over.

Complete factory-supervised maintenance can be included in *any* of the above plans! For complete information, write Towmotor-Gerlinger Rental Division, Towmotor Corporation, Cleveland 10, Ohio.



FORK LIFT TRUCKS, CARRIERS AND TRACTORS SINCE 1919

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation



Here is flexible "ZONE CONTROL" with **Jeffrey Dryers and Coolers**

WHETHER YOUR cooling and drying problems are simple or complex—Jeffrey electric vibrating equipment will solve them. Each installation is built of standard, pre-engineered units, adapted to the particular job, designed to help produce quality products. Sections may operate at different air temperatures, velocities and conveying speeds, giving "Zone Control" in each individual step in the system.

Sectionalization permits intermediate operations—mixing, scalping, crushing. Flexible arrangement in straight line or U-shape meets all space requirements. Food products are dried or cooled in minutes instead of hours.

Our laboratories are available to customers for tests free of charge. Pilot-size test-units available for testing under production conditions in a customer's plant. Inquire about laboratory facilities or field-test rental service. The Jeffrey Manufacturing Company, 920 North Fourth Street, Columbus 16, Ohio.

CHECK THESE PROCESSING ADVANTAGES

- Easy to install, inspect, clean.
- Gentle action prevents degradation; no structural vibration.
- Slight suspension (direct air type) produces fluffing, fluidizing action.
- Sectionalization gives complete "Zone Control."
- Easy servicing; minimum power consumption.
- Factory wiring eliminates on-job work.
- Units available with electrical or mechanical vibrating drives.



Salt actually floats in the air as the Jeffrey vibrating conveyor propels it through the dryer, drying it to .02% moisture content.



Jeffrey dryer of three units in line prepares bulk powdered Sucaryl by gently conveying it along the heated plate conveyor.

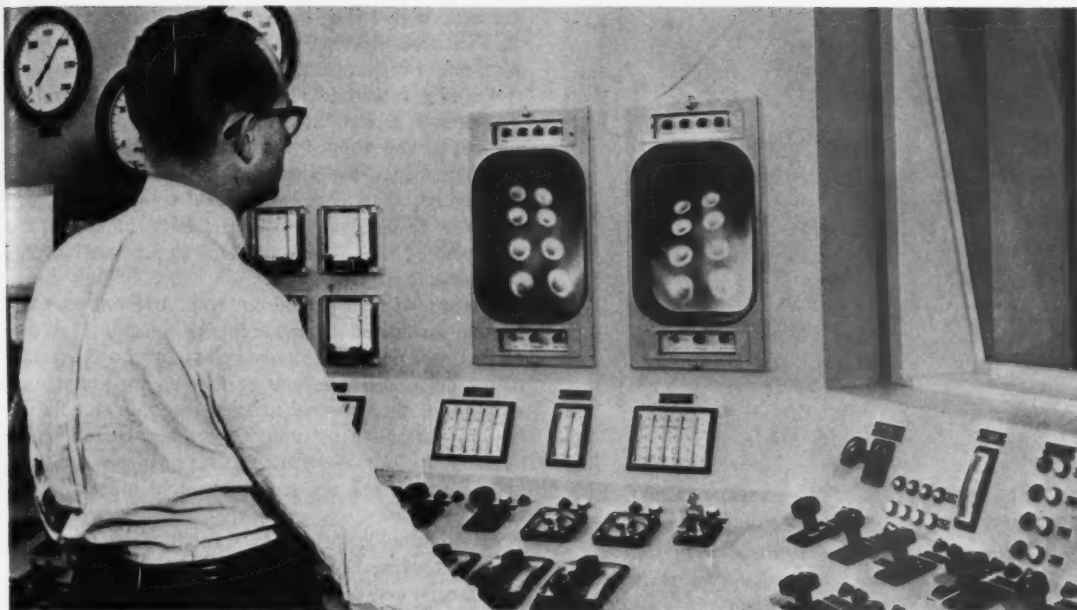


JEFFREY

CONVEYING • PROCESSING • MINING EQUIPMENT...TRANSMISSION MACHINERY... CONTRACT MANUFACTURING

Burlingame, California • 1862 Rollins Road • Telephone OXford 7-5303

... for more details, circle No. 28 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960



LOOKING INSIDE the boilers at Dept. of Water & Power, Los Angeles, Scattergood Steam Plant. Operator can see CB burners at a glance through Kin Tel industrial TV system and spot any malfunction immediately.

A SPECIAL



REPORT

PLANT ENGINEERING AND MAINTENANCE

Western plants are focusing new attention on maintenance. Plant management is finding that good maintenance cuts production costs. This report tells what's happening.

AS WESTERN PLANTS increase in size, and as production equipment becomes more intricate, and much more expensive, plant maintenance is beginning to assume a new importance in the eyes of plant executives.

Several trends in maintenance are apparent in Western plants. For one thing, there is more emphasis on elimination of maintenance by elimination of the problem and by using materials and equipment which require relatively little maintenance.

Then too, maintenance equipment is becoming more automatic. Items such as compact maintenance repair trucks, portable welding equipment, and power sweepers are common. Also, as maintenance becomes more complex, there is a trend to utilize services of outside specialists. The use of firms who specialize in

industrial cleaning is an excellent example.

On the following pages, the editors of WESTERN INDUSTRY have compiled a report on what's happening in the field of Western plant maintenance. Special attention is paid to some of the newer trends and developments, your blueprint to better plant maintenance.

The majority of plant floors in the West are concrete. Concrete is an inexpensive long wearing type floor for industrial use. In many cases the concrete is hardened to resist wear and erosion caused by heavy traffic, chemicals, dirt, grease and oil. A practice sometimes followed is mixing of colored pigment in the concrete prior to pouring. This provides a colored floor that is much more satisfactory than painting since it never requires repainting.



RESILIENT FLOORING being waxed using Armstrong Linogloss wax. Key to this type of floor care is waxing and two thin coats are far more effective than one thick layer.

Despite hardening, concrete will show wear and become pitted. To solve this problem, which in some areas such as loading docks and aisles can become acute, several steps can be taken. A number of fillers are marketed which are used to level holes and pits in the concrete. These in general will provide a hard wear-resistant surface and adhere to the concrete even when applied in thicknesses of $\frac{1}{8}$ in. or less. The fillers are of two general types, those used as a mix with cement and those of an asphaltic base where no cement is used.

Epoxies are more and more being used as a coating for floors. Not only can they be used as fillers for chipped and pitted concrete floors, they are excellent for surfacing all types of industrial floors. Epoxies are able to withstand severe corrosive attack as well as vehicular abuse. If there is a trend in industrial floorings in Western plants it is towards increased use of epoxy coatings. These coatings must be correctly formulated for the particular application and applied by an expert. Mistakes made cannot be rectified. Because of the general unawareness of how epoxies must be specified and applied they have not been utilized to their full capacity.

Another answer to care and replacement of plant floors is in the use of steel floor plate. This can be used to advantage on loading docks, ramps and other locations which receive heavy traffic and severe wear. Floor plate such as Super Diamond by Alan Wood Steel Co. can be used over worn areas and has the added advantage of being slip proof and easily maintained.

Floors of plastic tile are found in many industrial buildings especially in plant offices and similar type installations. The many types of plastic tile such as: asphalt tile, vinyl tile, cork tile, asbestos tile and so on are all utilized. In the West the trend is against wood as an industrial flooring. No doubt this is partly due to the fact that most new plants use a poured con-

crete flooring which can either be used by itself or if additional flooring is desired lends itself to the application of plastic tile.

Roofing materials are varied although the most common is asphalt applied hot over asphalt felt or tar paper and topped with gravel. Other materials include coal-tar, asbestos cement decking, aluminized steel, vinyl coated steel and nickel copper roofs. All of these have advantages particularly in specialized cases and all should be considered as possible roofings for a Western plant.

Western weather is hard on roofs. In Southern California, considered by maintenance personnel as one of the most destructive areas, plant roofs are exposed to the deteriorating effects of the sun for about nine months and then are soaked by intense rain and abused by abrasive action of runoff water for the remainder of the year. For Western roofs many plants and roof maintenance firms are turning to cold process applications.

In choosing a surface to combat weathering, the Federal Roofing & Siding Co., Los Angeles, a specialist in industrial and commercial roof applications, has had success in using Pioneer-Flintkote cold process, a new system that rules out use of hot asphalt, avoids noise and smoke of a portable melting unit, and prevents danger of worker injury from burns.

Recently Federal Roofing used the P-F cold process on two structures having over 290,000 sq. ft. of roof area. The cold application was selected because of the extreme height of the buildings, over 90 ft., and because of the congested area in which the buildings were located. Smoke and noise had to be avoided.

Roofing was applied in three steps. Three layers of Pioneer-Flintkote 53-lb. Ironclad base sheets were nailed and cemented with Flintkote Fibrex cement. This creates a live waterproof membrane. Over this was applied P-F C-13-C-4 Hydralt protective coating to protect the membrane from weathering and abrasive action.

Rather than lift the liquid coating to the roof for application, Federal crews used a Graco pump unit, hose and a spray attachment to apply the compound.

The pump was fitted directly to 50 gallon drums of emulsion and the liquid was shot to the rooftop at about 900 psi. On the roof one man maneuvered the hose, another directed the spray. Final coating was more uniformly and rapidly applied than with any other method.

Plant maintenance people faced with upkeep of roofs are giving rock a second look as a protective media for underlying asphalt-covered roofing exposed to extremes of Western weather. Many new industrial buildings are under construction with roofing rock listed in architectural specifications.

Basically it has been found that porous rock is excellent for insulation, but not in cooler climates where precipitation could form in pores, then freeze and expand to crush the media. Hard surfaced rock is more weather resistant, but should not have a glassy surface, as some ceramic chips do, as in a hotter climate it will tend to melt asphalt coverage by reflected sun heat. Simple pyramids and cones are found best for adhesion to asphalt.

Bethlehem Steel at its San Francisco shipyard prolongs the life of the corrugated sheet metal roofs of its warehouses and other buildings as much as five to ten years by spraying them with a water soluble asphalt emulsion. Because of the yard's close proximity to San Francisco Bay, corrosive action of the salt air causes unprotected corrugated roofing to pit and rust, necessitating replacement after a few years. Some of the yard's roofs, protected in such a manner, are still serviceable after 18 years. Applications of the emulsion are made about every seven years.

CLEANING AND SANITATION

That section of plant maintenance called housekeeping is undergoing a change. Much of the cleaning is being done by machine. Powered equipment is common in Western plants and includes power sweepers of both the walk-behind and ride varieties, steam and vacuum cleaners, and powered street sweepers for outdoor areas.

With this trend to power equipment there is a second trend. Many Western plants are contracting out their household maintenance tasks to maintenance service organizations. These firms specialize in cleaning industrial plants, office buildings, stadiums, etc., and are equipped with experienced personnel and modern equipment, equipment that some of the smaller Western plants cannot reasonably afford to purchase.

There has been a general improvement in recent years in the effectiveness of the various floor cleaning compounds, sealers, and waxes. Not only are these more effective but they are easier to use and almost all of them lend themselves to automatic equipment. For concrete floors there are such products as degreasing solutions, that are fireproof, non-toxic and chemically mild. There are also sealers and etchers all in addition to a standard all purpose cleaner. For plastic tile floors, waxes are improved and have become more specialized in purpose.

Other areas of cleaning include use of steam cleaners, degreasing solvents and various other specialized cleaning solvents and solutions.

Western firms are finding out that clean, sanitary plants are safer and more efficient. Cleanliness saves money in prolonging the life of equipment. In many Western plants cleanliness is not only advantageous, it is absolutely necessary for production of close tolerance parts. Look for an increasing insistence on cleanliness and sanitation coupled with an increase use of automatic equipment to accomplish this.

PAINTS, PROTECTIVE COATINGS, RUST CONTROL

Painting, using protective coatings and controlling rust are all necessary procedures that cannot be eliminated, even in the newest, most modern Western plants. They can be reduced though by plant planning and by intelligent maintenance. The use of long-life, pre-coated materials or those requiring no painting will greatly reduce maintenance costs.

The cost of painting is mainly in the preparation for painting. It is in general a labor cost. Therefore to reduce costs here there are several rules to follow: (1) Do not allow the surface to deteriorate between paintings; (2) When you paint use the best paint possible and use two coats to increase length of time between paintings; (3) Don't be stingy in application; get a heavy coat on, for paint is inexpensive in comparison to cost of application.

There are a number of protective coatings on the market that are used to provide a long lasting weather proof seal. In general these are more expensive than paint initially but due to their long life these coatings often cost less in the long run.

One such example is the Seattle, Washington, Fairfax Bread Co. plant, a division of Safeway Stores. In 1949 the Seattle area was severely shaken by earthquake tremors. Streets and sidewalks undulated, buildings trembled, telephone poles wagged and in general



THREE MAN CREW holds tools and materials for first two steps in Flintkote cold roofing process. Man at left holds 53 lb. Ironclad base sheets. Bucket contains Flintkote Fibrex cement. Broom is for cleaning old roof surface.



TOP PICTURE—Seattle, Washington, plant of Fairfax Bread Co., Div. of Safeway Stores, in 1949 after earthquake tremors opened cracks on walls. Shortly after building was sealed and coated with A. C. Horn Vulcaflex.

BOTTOM PICTURE—Recent picture of same plant, after approximately ten years. Coating is still in good shape and no cracks have appeared.

a great deal of damage was done. The stucco face on this plant cracked and shattered exposing the original brick in various places. Structural cracks radiated from the corners of windows, wound up the walls from the ground to the roof and across entire sections of wall. Even after this tremendous shaking the building was found to be structurally sound.

On checking into the repairing of the exterior stucco facing of the building, patching was eliminated because of appearance, since the patches would always show under paint. Consideration was given to restuccoing the entire building, which, while satisfactory, was costly.

An excellent solution to the problem was found in the use of Vulcaflex, a heavy duty exterior coating developed by A. C. Horn. The coating acts both as a waterproof and a decorative finish. It is elastic and flexible and designed to expand and contract as building movement occurs. This elastic film has high adhesion to concrete or masonry and is strongly reinforced with asbestos fibre.

To repair the building's exterior new stucco patches were applied to the areas where the original stucco had been shaken loose. All cracks were filled and the joints around the windows, doors and cold joints were repainted with Hornflex, a flexible thiokol based sealant. When this preliminary work was completed and while the walls were thoroughly dry, a prime coat of A. C. Horn's Suction Sealer #400 was applied over the entire surface, to prevent water inside the walls from working its way out under the coating and caus-

ing blisters. The prime coat was allowed to dry 24 hours. The next step was to apply Vulcaflex, in this instance by spraying, at the rate of 3 gallons for each 100 square feet of surface to an average thickness of 38 mils, or approximately 15 times thicker than an ordinary paint coating.

Since these repairs were made the product has shown excellent resistance to weather and moisture over a period of years and because of its lasting quality made the cost of the material much less than a paint coating.

In dealing with rust on metal surfaces a number of rust preventative coatings are available. Oil based paints such as Rust-Oleum are particularly suitable for weather exposure and have an advantage of requiring only limited preparation prior to painting. Alkyd paints are also suitable for weather exposure and may be used in building interiors that are subject to corrosive conditions. Phenolic paints may be used to advantage on steel in places subject to high humidity or immersed in fresh water. Chemically resistant paints may be used with success under very severe exposures. Other rust preventative coatings include compounds applied in thick films (about $\frac{1}{8}$ in. thick) and coatings of a bituminous nature such as coal tar enamel and asphalt mastic.

MAINTENANCE OF OPERATING EQUIPMENT

Plant operating equipment has undergone many changes in the way of improvements. As more modern plants are built they are being equipped with better lighting, air conditioning, dust elimination systems, and in general use more power. This is placing an additional burden on maintenance and calls for maintenance personnel with specialized skills.

Fortunately at the same time industry has developed materials and equipment which are more maintenance free and these are often used both by equipment manufacturers and by maintenance people. For example in discussing the use of thermoplastic materials in school buildings, James L. Sheehy of Tube Turns Plastics, Inc., has stated that "vinyl plastic materials are reducing and in some cases totally eliminating maintenance costs." B. F. Goodrich Chemical Co. has recently put a new high temperature plastic on the market that, as pipe, can handle pressures as high as 100 to 160 lbs. per sq. in. at 180 degrees F. and several times that at normal temperatures. This material, called Hi-temp Geon, recently passed tests of contact with 98% sulfuric acid at 185 degrees for 30 days. This general type of non-corrosive plastic pipe is finding uses in industrial pipe, hose and fittings. Where it can be used it cuts much of the maintenance problem of repair due to corrosion.

For plant personnel involved with operation and maintenance of steam lines resisting high temperatures and pressures, the ideal valve is one with long life, little need for maintenance and having resistance to failure when frequent throttling is required.

Many times failure is pinpointed in valve seats and discs that corrode or warp. Unfortunately, replacement of faulty valves often requires extensive shut-down.

Providing Western plants with a tough, maintenance

free valve is Lunkenheim Co., Cincinnati, Ohio, that has introduced the LQ 600 bronze globe valve, featuring specially alloyed material in flat seats and discs that are finished to micro-optical standards.

To give an example of valve performance, Jantzen, Inc., Portland, Ore., was either repairing or replacing valves on steam lines used in shrinking and dyeing operations every few months. Steam lines carried 125 lbs. pressure at 250 to 300 degrees F. and the lines frequently required throttling.

A set of LQ 600 valves were placed in operation and at last report had passed one year of trouble free service.

LQ 600 valves, characteristic of the entire line, feature a non-slip handwheel that has protruding lips spaced finger width so that however greasy or slippery the hands are, a worker can make sure of tight closure without resorting to hand tools.

Much of the problem of maintaining operating equipment is a preventive maintenance one. It consists of regular inspections of equipment by maintenance personnel, making minor adjustments when needed and lubricating. In such items as heating and ventilating fans or refrigeration units the problem of maintaining these units lies mainly in the bearings and is a relatively limited one. In refrigeration units, because of condensation, some firms make the unit from zinc grip sheet steel (rolled-on zinc), others coat the surface to stop rusting.

In special cases such as a fan to remove corrosive and poisonous fumes, the standard unit may not prove satisfactory and cause excessive maintenance costs. Here the solution is to utilize a special type fan. This incident is what happened in a western chemical company. Maintenance costs came to over \$1100 in the 18 months before the unit broke down completely. To solve the problem a Riginv #20 plastic exhaust fan by Reil Process Equipment Co. was substituted. Savings in maintenance in repairs has been estimated by plant personnel at more than \$4500.

In discussing maintenance of such items as fans, ventilating systems, dust collection systems, etc., it should be recognized that some of these such as dust collectors have in themselves a maintenance function. The removal of dust and fumes not only reduces plant cleaning but helps prolong operating life of other equipment. Industrial firms who manufacture dust collectors are finding that industry in the West is becoming more aware of the need for elimination of dust and fumes. This is not solely because of outside agencies such as local "smog" prevention bureaus but because Western plants are realizing that they can save money by the elimination of dust.

There are three types of collectors: electrostatic; wet scrubber; bag house or cloth type dust collector. Each has advantages depending upon the type of installation. The bag house type has increased in use somewhat because of the recent development of an extremely effective glass filter cloth that allows it to filter in up to 700 degrees F. heat, an area formerly impossible for this type of collector.

A system of cleaning air, that operates on a new principle of electronically exploding dirt particles to virtually weightless size, is being installed in the Phoe-



SCALE IN PIPE at left impeded passage of water. Scale was removed by 5 hour soak in inhibited acid descaling solution with no danger to sound metal. Solution is made by Oakite Products Inc.

nix manufacturing facility of a national electronics firm under the supervision of the Phoenix branch of Norman S. Wright & Company of San Francisco.

The Statronic system of dirt and dust control electronically bombards dirt and dust particles entering the air stream, shattering them to well below 0.1 micron (1/250,000 of an inch) in size. In this state they remain suspended in the atmosphere and have little opportunity to settle because they become part of the moving air currents.

As a result the streaked and dirty ceilings and other surfaces so often associated with air and heat conditioning systems are eliminated. Maintenance expense for manpower and materials is drastically reduced. No collectors of impurities are necessary and the cost of disposing of collected materials is eliminated.

Air coming into the air conditioning or heating system goes through the prefilters and enters a bank of three electronically charged screens. Here, in the energy field, the particles are exploded to bits below 0.1 micron.

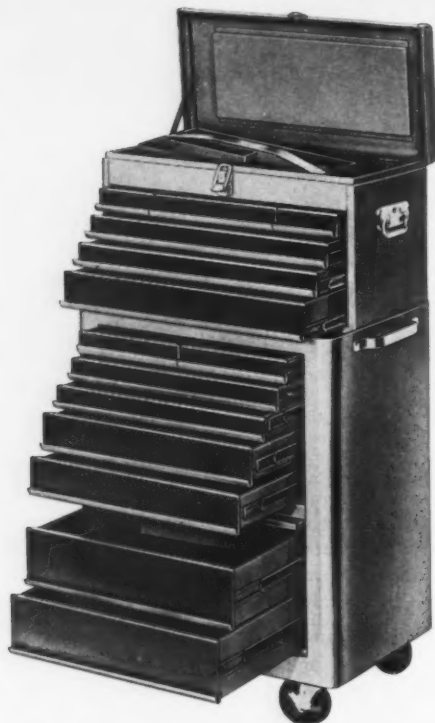
At the same time the shattered particles of dust and dirt become negatively ionized, actually picking up electrons from the static field. This prevents them from adhering to ceilings, walls, ducts and even the human body.

As these negatively ionized particles reach the conditioned space their charge is transferred to other airborne particles which have entered the space through doors or from clothing. These, too, are prevented from adhering.

Equipment required for the Statronic system of dirt and dust control is easy to install and service. It consists of the bank of screens which are charged by the compact static generator that provides sufficient static charge for a maximum of 10,000 CFM air flow.

PLANT FURNITURE

Plant furniture such as desks, work benches, cab-



MECHANIC'S TOOL CHEST, an important item for maintenance personnel. Made by Lumidor Mfg. Co., L.A., unit is typical of plant furniture used in maintenance departments. Note cabinet is on rollers and if necessary can be moved to job.

inets is designed to suit most needs. Manufacturers make models with a number of variations so that it is the unusual case that a special item need be built.

Many firms who need large storage areas for records are changing from filing cabinets to industrial shelving and open storage. Not only are records more accessible but shelving permits use of overhead space. The trend in shelving is to quick and easy adaptability. Racks must be sturdy yet adjustable at a moment's notice. Thus in the case of a production change where a different size item must be stored, the rack can be immediately altered to fit the need.

Bins vary in size and shape and are designed to fill a more specific need. Emphasis here is on quick locating, easy selection and fast filling.

Color is becoming more prevalent in plant furniture. Industrial plants, and those in the West particularly, are getting more color conscious. Plant color schemes are being followed and manufacturers of plant furniture are getting calls for colors not usually used in the past by industrial plants.

REPAIR EQUIPMENT, MATERIALS AND TOOLS

Wages for maintenance personnel have been steadily rising to the point that some 60% of the total maintenance cost is now wages. To offset this, maintenance departments must reduce job repair time. As a result

they are receptive to the new and better tools constantly being developed.

In a large Denver plant, maintenance men answer job calls on small well equipped carts that run on L-P gas. In the same plant the maintenance department used a variation of these same carts for plant calls requiring welding. Each cart contains both arc and oxy-acetylene equipment and has a small gasoline powered generator for use when an electrical outlet is not available to run the arc welding unit.

Leaks in tanks can now be detected in a fraction of the time using a tracer gas and an instrument sensitive to it. Holes can be drilled accurately and easily using a portable stationary type drill press with a magnetic base. These and other equally time saving tools are being utilized by maintenance personnel. Ladder wagons, better and faster machine tools, machines that flame-cut intricate shapes, and a large assortment of hand power tools are all becoming a part of the maintenance picture.

PREVENTIVE MAINTENANCE AND LUBRICATION

Any effective system of preventive maintenance must have two basic points. It must be thoroughly planned and scheduled so that items are inspected and maintained at regular intervals, and records must be kept on all equipment requiring maintenance.

A typical small steel plant such as Bethlehem's in South San Francisco has several hundred motors, approximately 1000 conveyor rolls, 500 crane wheels, 6000 assorted bearings, 4000 gears, sprockets, and pinions, plus various assortments of shafting, chains, frames, brakes, clutches, rails, burners, etc. All of these wear out, burn out, break down, freeze up, twist off, or just disappear. The repairing, replacing, re-installing, and the retiring of these parts is in itself a multimillion dollar business.

Of this volume of components which make up the steel plant's mechanical and electrical complex, the sizeable individual units responsible for large dollar expenditures as a result of material failure or excessive operating delays are quite easy to identify as being trouble sources simply because of their size and individual production contribution to the plant. There are, however, a multitude of minor delays and repairs of individual components that by themselves have no great dollar value, nor do they individually cause any great loss of production; nevertheless, small delays do total up to a surprisingly high dollar figure. It is this loss that also must be brought under control.

In the initiating of any intelligent action against an undesirable force or circumstance, these undesirable elements must first be located and identified. In this case, they are those units that are susceptible to recurrent, minor repairs or delays. The recording of the actions taken against these units must also be provided for in the plan to be followed so as to satisfy both the historical and statistical requirements.

After considerable study, the plant initiated a records system for sections of the plant under Mechanical Department foremen. This involved use of a file card, and layouts of the producing units involved so that both repairman and clerk know what unit has been worked on. The card furnishes, in a quick and

easily recognizable manner, data necessary for maintenance control.

Results from the first year's operation have more than justified the investment involved, and the ultimate result will be better equipment availability, longer component life, fewer spares; in short, lower maintenance costs.

This is accomplished by means of a records system which is simple, yet answers the "where, why and what" question which is necessary to accomplish a progressive maintenance program.

The heart of any system of preventive maintenance is lubrication. This is an area that will pay many Western plants dividends to investigate more thoroughly. The cost of lubrication makes up a fraction of the cost of preventive maintenance, yet its savings, in elimination of machine downtime, and increasing the life of equipment, represents a sizeable percentage of the total savings of an effective preventive maintenance program. Because of their smaller size Western plants often do not have the manpower necessary to have full time lubrication men. Too often lubrication is of a haphazard nature. Many Western plants can save themselves money by tightening up on lubrication procedures and by making certain that proper lubricants are being used. Most suppliers of industrial lubricants will, even for smaller plants, send a lubrication expert to make a study of lubrication needs and specify lubricants.

In industrial lubrication two major trends are apparent. Centralized lubrication systems are becoming more popular. Equipment manufacturers have taken the lead and are building centralized systems into more of their equipment. This is especially true of machine tools. Along the same line is the increased use of sealed bearings or of non-lubricated materials such as Teflon.

A second important trend in lubrication is the development of multipurpose lubricants. Now one grease will satisfy most of the lubrication requirements for an industrial plant. This means that there is a decided saving in the ordering and storing of lubricants. It means also that there is less chance of using the wrong type of lubricant. Having to use only one grease cuts down on lubrication time too.

Oils have also been improved. They are not only of better quality but chemicals have been added to lubricating oils and one oil can now handle many different lubricating problems. For instance some oils have a rust inhibitor additive to prevent oxidation.

REPAIR AND REPLACEMENT OF MOTORS

The repair of electric motors is a universal maintenance problem. It is also one that requires a special skill. Here, as in housekeeping, is an area where it is worthwhile for individual plants to check internal costs of motor repair against an outside repair service.

Electric motors aside from normal wear need maintenance attention because of vibration, dirt, moisture, misapplication, incorrect lubrication, or insulation weakness. Incorrect installation can cause vibration harmful both to wiring and motor. Where dirt and moisture become problems a totally enclosed motor is called for. A fairly recent development in mo-



PORTABLE FLUID RECONDITIONER is in process of removing undesirable contaminants from the industrial fluids that are circulated in this Reed-Prentice injection molding machine at Inglewood, Calif., plastic company.

tors are the moisture-sealed motors, which, though open, have been coated with a plastic seal to provide protection in critical areas. Because of lower cost these are being used in place of totally enclosed motors in certain applications where dirt or moisture are present. General Electric for instance is manufacturing a motor of this type which has found acceptance in paper mills in the Northwest where moisture is a problem.

Ordinary maintenance of motors consists of blowing them out at regular intervals and checking lubrication points if motors are not of the sealed prelubricated type. Many plants do not even schedule preventive maintenance on fractional horsepower motors and, unless something is obviously wrong, run them to destruction.

For maintenance and repair of electrical equipment in Western plants the general trend is away from use of risky solvents such as carbon tetrachloride during periodic cleaning.

To supplant this long-time standby, a number of "safety solvents" have been marketed and have been found ample in cleaning ability, cost, speed, kindness to electrical insulation, lack of odor, low toxicity and high flash point.

Best liked compounds have maintained the features of a straight petroleum-type solvent that does little damage to varnish insulation and has low toxicity.

A number of brands in this category have flash points in excess of 200 degrees F. and do not include the more toxic hydrocarbons in their makeup. Some evaporate to complete dryness in 5 minutes.

Others claim no flash or fire point along with substantially low toxicity.

SPARE PARTS—STOCKING AND REORDERING

The problem of spare parts is a difficult one in many plants. Overstocking of parts is expensive and maintenance departments can literally tie up thousands



BANK OF FOUR Lunkenheimer LQ 600 series valves are shown in operation on steam lines at left servicing the shrinking-dyeing line. Valves resist throttling, high temperatures and pressures.

of dollars in parts, this at a time when many Western plants desperately need operating capital. On the other hand, understocking of spares is equally serious for having too few on hand will cause expensive production delays when a critical piece of equipment breaks down and replacement takes days instead of hours.

Many plant maintenance departments have found a solution in keeping detailed records of part failures and replacement needs. Over a period of time this method presents a picture of what parts should be stocked and in what quantity.

One effective method of safely reducing parts inventory lies in standardization. To be really effective this requires a joint effort with production and purchasing but well justifies the effort. Many Western plants are in an advantageous position here. Standardization is far less difficult to put into operation in a fairly new, relatively small plant that is expanding rapidly.

HOW TO IMPROVE LAYOUT, LIGHTING,

Plant layout is an individual problem. Each plant has different production needs and layout must be designed to fit these needs. From a maintenance standpoint layout should take into consideration that certain operations require installation of special plant equipment. Heat treating is one such example. If the location of the heat treating department can be placed so that fuel and electric power is provided in the least expensive manner then the overall cost can be reduced. Another important consideration in plant layout is material handling. Proper work flow must be followed since it increases production and reduces production costs.

The modern plant concept is based on flexibility so that manufacturing changes of parts can easily be effected. This calls for increased power sources, partitions that can be quickly removed or changed to conform with new layouts caused by production changes,

and increased areas of floor space unobstructed by posts and permanent obstacles.

There are two basic methods of plant layout being used today. One is the line method where all equipment used for production of an item is in a production line and work progresses along this line from one machine to the next. This is usually found where there is high production of one item or several similar items. The other method is the area method where all machines of the same type are grouped together and work is moved from turning to milling department and so on.

Since each of these methods of layout have their advantages plant layout must be concerned with that which more nearly suits the individual plant. In a Denver plant that manufactures precision items the layout problem has been solved by a combination of both. The plant basically is set up in areas where jobs progress from one department to another. However one item is constantly manufactured in some quantity and a separate production line has been set up for this item. All of the different types of machine tools needed in its manufacture have been removed from their various departments and placed together so that the work flows quickly and delay is reduced to a minimum.

Plant lighting is one field where recent developments are rapidly changing accepted ideas. Three types of lighting are available: incandescent, fluorescent and mercury vapor. All three have their place. In the West there is a definite trend to better lighting. Western plants such as electronic plants need more illumination since the operations and parts assembled are often extremely small and of a precision nature.

Incandescent lighting is the least expensive to install but in most cases it is the most expensive to maintain. It has one advantage, that of going on instantly. It thus can be used to advantage in limited use areas where lighting is not continuously required.

Fluorescent lighting is extremely popular, especially in the West, where a high quantity and quality of light is needed. It works best when fixtures are installed at lower heights or in plants with low ceilings. It is far less expensive to maintain than the incandescent type, for, though more expensive, the tube life is far longer and less electricity is used per foot-candle of light given. A new development here is a fluorescent unit which can be used in regular fixtures and gives some 30% more light. This offers two advantages: light can be increased considerably using the same fixtures as before; or, fluorescent fixtures may now be used at greater heights than before making its use feasible in plants with higher ceilings.

The mercury vapor lamp has received new attention recently. Not only is it the least expensive to maintain but it gives more light than either of the other two. While mercury vapor installations are individually more expensive to install, the lamp has a longer life than the fluorescent and, because the light is brighter, fewer are needed. A development that has brought its use to the fore is that these lamps have been successfully color corrected and no longer give the ghastly light formerly associated with mercury vapor lamps. Mercury vapor lamps because of their high intensity are usually used

in plants with high ceilings.

All three types of lamps are now available with aluminized reflectors built in the lamp itself. These built-in reflector lamps can be a valuable maintenance aid especially in high or hard-to-get-at installations where reflectors get dirty and are difficult to clean. With a built-in reflector these lamps provide increased light.

Companies such as Sylvania are urging group replacement of fluorescent lamps. It works like this. Tests show about 50% of lamps burn out before the end of their rated life and about 50% after. After 85% of their rated life lamps burn out at increasing frequency. Group replacement at 85% of rated lamp life cuts maintenance labor cost and gives better overall lighting. What little is lost on discarding inefficient lamps is made up in efficient replacement procedures.

In plant power the West is seeing increased control, centralization and equipment designed for better maintenance. Power plants are becoming more automatic and at the same time more efficient. Transmission of power throughout the plant is being improved to make installation and moving of equipment a far simpler job. Some plants are piping compressed air and setting up plug in outlets at convenient locations. Mechanical transfer of power is being improved also with such developments as the new smaller stronger "V" belts.

WAYS TO EXPAND EFFICIENTLY

Efficient expansion of plant facilities is seldom haphazard. It must be based on planning, the earlier the better. At the time the plant is built, if plans for expansion are incorporated in the original building, a large amount of money can be saved. For instance at a slight extra cost easy access to utilities can be provided, and foundations, walls and roof of the original plant can be designed to provide for inexpensive addition to the plant.

Many times planning this early is not possible. Firms cannot always predetermine additions this soon and must plan on the basis of changing the existing building. They must then decide whether it is more feasible to expand the original building or to build a second building close by. Many have done the latter.

Plant expansion today is made easier by a number of newer methods of construction. Steel buildings are one inexpensive answer. Preformed concrete walls using tilt up construction are another possibility. Several firms are marketing pre-coated steel or aluminum panels for walls and plywood and hardboard are also items that are quick and easy to apply. There is a trend to backing the sheeting with insulation so that only one handling is needed for both.

For the plant interior increased facilities can sometimes be achieved through better utilization of space. Flexibility is what is needed and movable walls and knockout panels are the answer here.

REDESIGNING HIGH MAINTENANCE EQUIPMENT

Almost every Western plant has the problem of having one or more pieces of equipment that requires excessive maintenance. Sometimes the equipment is being used under conditions that are extreme or harm-



MAINTENANCE SUPERINTENDENT at Kaiser's Moss Landing firebrick plant examines Fawick Airflex clutch and brake which control 1000 ton press with extreme precision.

ful to it. Other times the fault lies in some phase of its design. In the case of a motor that keeps burning out due to excessive dirt, etc., the solution is simple—replace it with a totally enclosed motor. Other times the solution is not so simple, especially if the equipment is a large machine or one that is continually shutting down production.

Here is the time for plant engineering to go to work. Often the redesign of the machine or that part which is causing the trouble, will well justify the time spent. One such example happened at the Kaiser Refractories and Chemical Division basic refractories plant at Moss Landing, California. Brick presses turn out standard bricks in a continuous automatic operation. Production of special brick, however, requires constant starting and stopping so that press operators can handle shapes with ease. These presses were equipped with mechanical clutches and operators had to control both starting and stopping manually. The method caused operator fatigue plus offered no positive protection against accidental recycling while operator was removing the brick. These clutches required adjustment every 16 hours of operation and complete overhaul every six months. Frequent inspections for loose nuts and broken parts were necessary.

Because of this it was determined to replace these mechanical clutches with a different design and type of clutch. Fawick air clutches and brakes were installed. This clutch has no linkages, levers or springs to maintain and the rubber actuating tube automatically compensates for friction shoe wear, eliminating need for adjustment. Its drum type air operation provides instant response to control and the clutch is instantly disengaged and the brake engaged by a photoelectric cell safety feature.

The result has been a 25% increase in production and an elimination of any serious maintenance problems or clutch replacement.



HELPFUL LITERATURE

FOR THE WEST'S PLANT OPERATING EXECUTIVES

FOR YOUR FREE COPY

CIRCLE APPROPRIATE KEY NUMBERS ON POSTCARD, P. 84

EXPLOSIVE METAL FORMING

A method of shaping metal parts by means of explosive energy is explained in this illustrated technical bulletin. Lists advantages of the technique, gives background information and outlines the materials and products for which the process has been perfected. *Propellex Chemical Div., Chromalloy Corp.*

... FOR YOUR COPY, CIRCLE NO. 100

VALVE CATALOG

Photos, specifications, features, descriptions and facts to consider when specifying valves are covered in this booklet. The catalog presents a line of valves in bronze, iron, steel and corrosion resistant metals and alloys; 24 types including angle, check, gate, globe and needle valves. *Wm. Powell Co.*

... FOR YOUR COPY, CIRCLE NO. 101

ELECTRONIC SPEED DRIVES

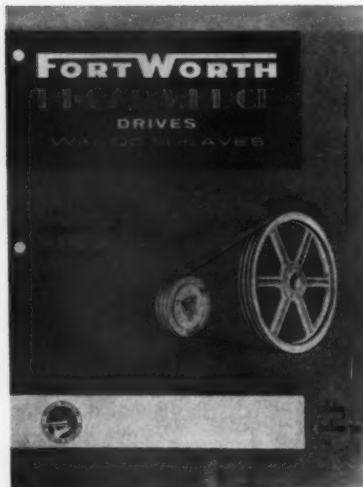
Bulletin describes the operation and performance of an electronic select-a-speed drive for application on machine tools, conveyors, pumps, test equipment or wherever accurately regulated adjustable speed is required. Discusses principles of operation, wide speed range, control panel and specifications. *Louis Allis Co.*

... FOR YOUR COPY, CIRCLE NO. 102

THE FUEL CELL

Booklet discusses basic facts about fuel cells including how they work, problem areas, various types of fuel cells under development, special features of new ion-membrane fuel cell, technical performance data and application information. Text illustrated with photos, graphs, schematics, drawings and diagrams. *General Electric Co.*

... FOR YOUR COPY, CIRCLE NO. 103



WEDGE BELT DRIVES

Engineering and specification guide on newly introduced wedge belt drives covers instructions for drive selection, tables of service factors, horsepower, and other necessary data. Also dimensions and weights of 182 stock and 54 made-to-order sheave sizes. *Fort Worth Steel & Machinery.*

... FOR YOUR COPY, CIRCLE NO. 104

HEATER COIL FREEZING

Why non-freeze air heating coils freeze is the subject of this technical bulletin. Discusses the factors leading to freeze-up, provides a chart for determining the freezing danger point, and offers three practical hook-ups. *Sarco Co., Inc.*

... FOR YOUR COPY, CIRCLE NO. 105

GAUGING SHORTCUTS

New approaches to gauging problems are pictured and explained in this booklet, showing suggested uses of tenth plug gauge kits and precision micro-ball gauge kits. Information given is applicable to most other types of gauges. *Deltronic.*

... FOR YOUR COPY, CIRCLE NO. 106

RENTING INDUSTRIAL EQUIPMENT

Handy catalog of industrial and construction equipment for rent outlines company's service. Lists descriptions and rental rates of various types of jacks, pumps, gear and bearing pullers, pipe benders, chain saws, earth drills, pipe pushers, tampers, cutting and threading equipment and hoist units. *Fornaciari Co.*

... FOR YOUR COPY, CIRCLE NO. 107

AIR POLLUTION PROBLEMS

Ways to lick one of the toughest air pollution problems in industry are presented in this bulletin. Presents illustrated application data which describes how glass-bag filters provide efficiency in cleaning hot, corrosive gases in three plants representative of the cement and metallurgical industries. *Dracco Div., Fuller Co.*

... FOR YOUR COPY, CIRCLE NO. 108

SLING HANDBOOK

Thirty-six page book opens with description of a new development in sling-making, the addition of a pressed-on ferrule and advantages of this innovation. Covers sling types, dimensions, weights and rated loads as well as sling fittings with specifications and complete data. *Union Wire Rope, Sub Armco Steel Corp.*

... FOR YOUR COPY, CIRCLE NO. 109

ELECTROSTATIC PAINTING

A new hand spray gun that uses electrostatic forces instead of compressed air for atomizing and applying liquid coatings is introduced in this bulletin. Discusses features: savings in paint, labor, equipment, exhaust, compressed air and includes many illustrated applications. Sets forth scope of the new tool. *Ransburg Electro-Coating Corp.*

... FOR YOUR COPY, CIRCLE NO. 110

and they run
and they run
and they run

1903—
Indianapolis.
a trolley car.
a rolling adventure surrounded by noise.
pennies, nickels, children...

and inside—
a Fairbanks Morse electric motor.
it drove the trolley over thousands of miles
and rode with it
into glorious retirement.

pick a year—
from the turn of the century until now.
pick a month,
pick a day,
pick a city,
pick a town—
our motors are in its history...
pulsing, driving, working.
powering the things we need
and the things we want.
pushing our daily advances.
pulling us into the future.

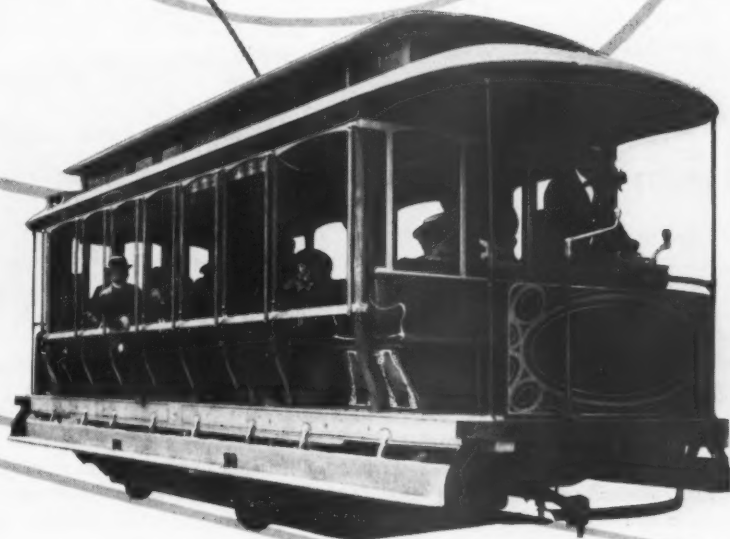
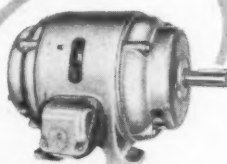
today our electric motors
are bigger and better.
they're also smaller and stronger,
surer and more powerful.

they operate in air and underground,
in freezing temperatures and underwater,
in gas-filled areas
and radiation atmosphere.

they power oil burners and compressors,
elevators and fans,
pumps, conveyors and saws.

they are adaptable
to every phase of every industry
for many reasons and more purposes.
they keep us growing
and they keep us improving.
they keep us ahead of the day before
and on the heels of the day ahead.

they are our heartbeats
and they run and they run and they run.



Fairbanks, Morse

A MAJOR INDUSTRIAL COMPONENT OF FAIRBANKS WHITNEY CORPORATION

The electric motor is one of the most versatile sources of power ever developed. It is economical, practical and time-resistant. Fairbanks-Morse electric motors can turn out $\frac{1}{2}$ horsepower or 10,000 horsepower, meet every known job demand within this range or be custom-specified to your blue-print projections. Whatever your production needs or plans may be, our electric motors can power them.

If you are in a field where power for production must be efficient, effective and dependable—we suggest that you consider our great variety of electric motors. For further information please write to: Mr. George H. Herrick, Vice President and General Manager, Electrical Division, Fairbanks, Morse & Co., Freeport, Illinois

LITERATURE ADVERTISED IN THIS ISSUE

Payloader, tractor-shovel models for bulk material handling. *Frank G. Hough Co.*
Page 99 Circle No. 66

Weatherproofing data for roofs and floors. *Pioneer Div., Flintkote Co.*
Page 115 Circle No. 81

Speed reducers for drives as low as .035 hp. *Boston Gear Works*
Page 75 Circle No. 38

Roof repair materials. *A. C. Horn Companies.*
Page 83 Circle No. 49

Shop equipment, rugged, functional. *Columbia-Hallowell Div. SPS*
Page 45 Circle No. 26

Handidrive conveyors handbook shows how to cut conveyor costs one-third. *Standard Conveyor Co.*
Page 111 Circle No. 79

Lubricant reference guide to economical equipment operation. *Standard Oil Co. of California*
Page 11 Circle No. 9

Fencing a plant eliminates pilferage, traffic tangles. *Anchor Fence*
Page 105 Circle No. 73

Controlled-air-power devices cut woodworking costs. *Bellows-Valvair*
Page 18 Circle No. 13

Lubricants, grease and fluid-type. Data book. *Lubriplate Div., Fiske Bros. Refining Co.*
Page 100 Circle No. 67

Gas-operated, electric-driven lift trucks. *Automatic Transportation Co.*
Page 13 Circle No. 10

Sling chain handbook of every type, size and grade. *Campbell Chain Co.*
Page 95 Circle No. 63

Hoists to suit specific needs. *Chisholm-Moore Hoist Div.*
Page 89 Circle No. 57

Dry fluid drive starts loads smoothly. *Dodge Mfg. Co.*
Page 86 Circle No. 55

Gear drives with "high hardness" feature. *Wagner Electric Co.*
Page 24 Circle No. 19

Spacer coupling for quick installation or removal. *Falk Corp.*
Page 17 Circle No. 12

Steel shelving, shop and material handling equipment. *Green-Penny*
Page 91 Circle No. 59

Exotic metals stock list, completely updated. *Kilshy Tubesupply*
Page 26 Circle No. 21

Sturdi-Bilt pallet racker handles any shape, size or weight. *Material Handling Div. Union Asbestos & Rubber*
Page 82 Circle No. 46

D-C motors with improved commutation, low brush wear. *Louis Allis*
Page 9 Circle No. 7

Color horizons system catalog, 70 colors, stops rust. *Rust-Oleum*
Page 19 Circle No. 14

Diffusers, eight types to meet specific lighting needs. *Smoot-Holman*
Page 79 Circle No. 43

Castings brochure details plant facilities. *Centrifugal Casting Co.*
Page 67 Circle No. 34

Fork lifts, trucks and carriers on a lease, rent or buy plan. *Towmotor-Gerlinger Rental Div.*
Page 47 Circle No. 27

Casters and wheels for any application. *Darnell Corp. Ltd.*
Page 81 Circle No. 44

Resinoid wheels for the foundry. On-the-job reports. *Norton Co.*
Page 23 Circle No. 39

Electric fork truck for 3000 and 4000 lb. capacity. *Elwell-Parker*
Page 102 Circle No. 70

Power units for material handling vehicles. *Ready-Power Co.*
Page 101 Circle No. 69

Drawing brass, a metal with built-in finishing savings. *American Brass Co.*
Page 69 Circle No. 35

Regulator gives steady flow of lubricated and filtered free air. *Perfecting Service Co.*
Page 84 Circle No. 51

Rubber products for industry brochure. *Goodyear Rubber Co.*
Page 90 Circle No. 58

Air-operated clamps that speed production. *Airmatic Valve, Inc.*
Page 109 Circle No. 76

Socket head cap screw with larger head and new thread. *Industrial Fastener Div., SPS*
Page 6 Circle No. 4

Rolled steel floor plate for easy maintenance. *Alan Wood Steel Co.*
Page 22 Circle No. 17

Hydraulic presses tailored to suit the need. *Pasadena Hydraulic, Inc.*
Page 85 Circle No. 52

WELDING POSITIONERS

Fourteen advantages are listed and four design features illustrated in this booklet devoted to a line of weld positioners. Gives complete specifications of models with capacities from 100 to 100,000 lbs. Also describes available optional features. *Harnischfager*

... FOR YOUR COPY, CIRCLE NO. 111

HIGH TEMPERATURE TAPES

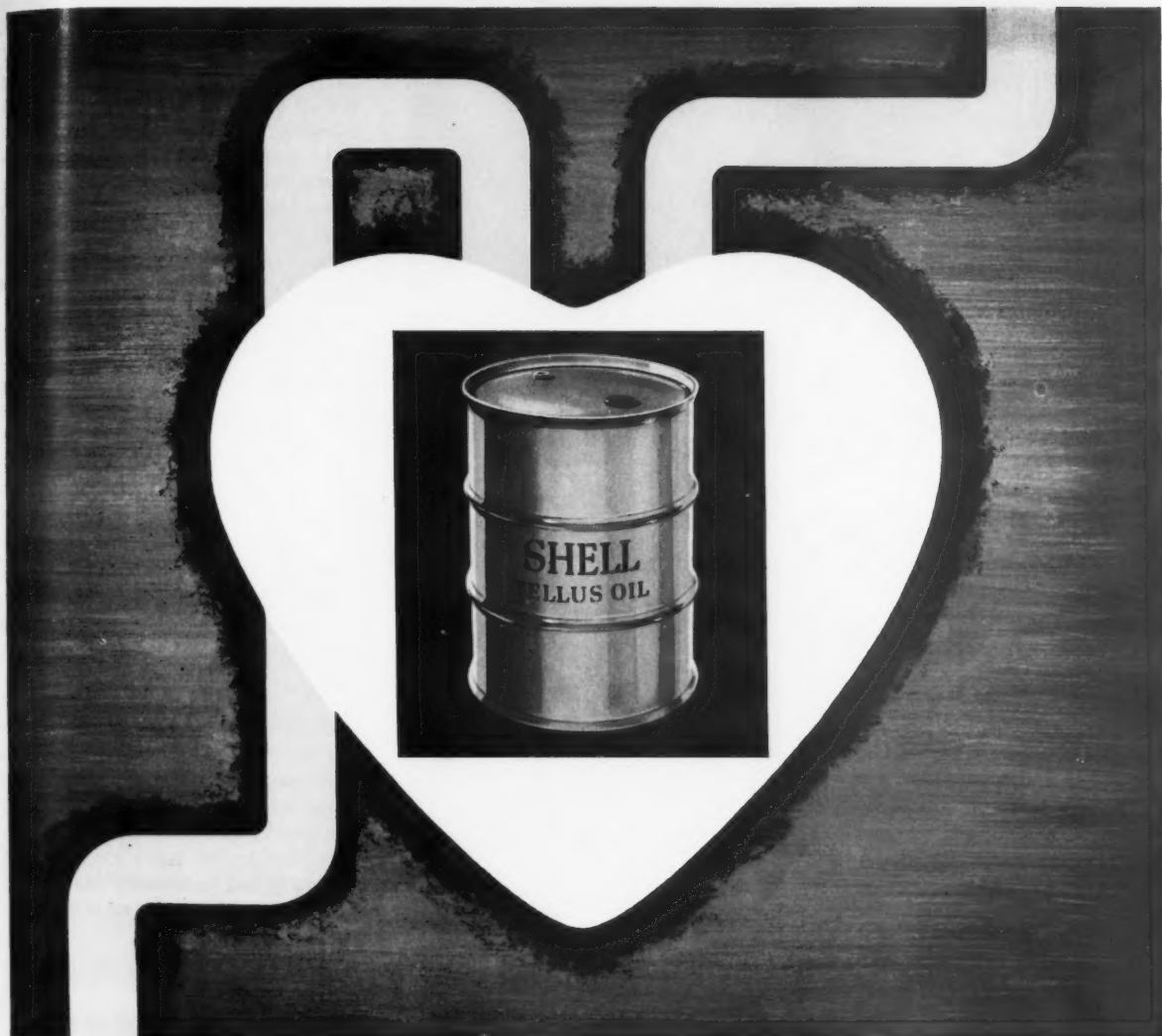
Brochure provides information to help solve extreme high temperature electrical and mechanical design problems. Presents data and properties on 10 high-temperature tapes including teflon, fiberglass and silicone tapes. *Connecticut Hard Rubber Co.*

... FOR YOUR COPY, CIRCLE NO. 112

SIGNALING EQUIPMENT

This 88-page manual describes air and electric signal systems, listing specifications of horns, bells, buzzers, chimes and sirens. Includes sections on gravity drop and lamp type annunciator and accessory equipment, such as door openers and clocks. *Spartan Faraday, Inc.*

... FOR YOUR COPY, CIRCLE NO. 113



Lifeblood of a trouble-free hydraulic system

Stationary and mobile hydraulic systems enjoy trouble-free performance with Tellus® Oil because of these features:

STABILITY. It resists sludge formation . . . operates efficiently over wide temperature ranges.

NON-FOAMING. It transfers power smoothly and without chatter.

ANTI-RUST. It protects pumps, valves and cylinder parts from corrosion and pitting.

For complete information on Shell Tellus Oil, write to Shell Oil Company, 50 West 50th Street, New York 20, New York, or 100 Bush Street, San Francisco 6, California. In Canada: Shell Oil Company of Canada, Limited, 505 University Avenue, Toronto 2, Ontario.

SHELL TELLUS OIL

the performance-proven hydraulic oil



. . . for more details, circle No. 30 on Reader Service Postcard



Johnson Bronze Speeds Quality Bearings, Bushings, Bars to You

That's because Johnson Bronze service blankets the West Coast through its plant in Oakland, Calif., warehouses in Los Angeles and Seattle and a network of industrial distributors.

Johnson's West Coast plant is completely equipped to manufacture special bronze castings and bearings and provide fast machine shop service. In addition, this facility, the warehouses and distributor network can serve any of your bearing needs for . . . General Purpose, Graphited, Electric Motor and Powdered Metal Bearings, SAE 660 Bearing Bronze Bars (from 13 to 105 inches long) and Aluminum Bronze Bars. You name it and Johnson has it here on the West Coast.

Call your Johnson warehouse or distributor for immediate service. Or, send your blueprint or specification to our Oakland plant for a quotation on your special requirements.

Johnson Bronze Company

Oakland 8, Calif.



. . . for more details, circle No. 31 on Reader Service Postcard

SLUDGE REMOVER

Bulletin outlines why the design of this sludge remover allows a saving of 20 per cent or more in equipment costs as compared to previous nozzle and arm design. Photo section illustrates the adaptability of the remover to any size or type of tank for uniform and positive performance. *Chain Belt Co.*

. . . FOR YOUR COPY, CIRCLE NO. 114

OVERLOAD PREVENTION SWITCH

Brochure describes a switch that automatically stops a hoist or crane upon an overload. Pictures five models of the switch and drawings show examples of adapting the switch to various reeving systems. Includes application illustrations and discusses features. Contains dimension data. *W. C. Dillon & Co., Inc.*

. . . FOR YOUR COPY, CIRCLE NO. 115

NEW VACUUM PUMP FOR LAB

Bulletin introduces new and improved pump for vacuum organic distillations and for transferring gases, sampling, dehydration, and testing. Discusses features of the pump: noiseless, change oil while running; and the pump can be disassembled, cleaned and reassembled in 30 minutes. *Hevi-Duty Electric Co.*

. . . FOR YOUR COPY, CIRCLE NO. 116

PAPER HANDLING TECHNIQUES

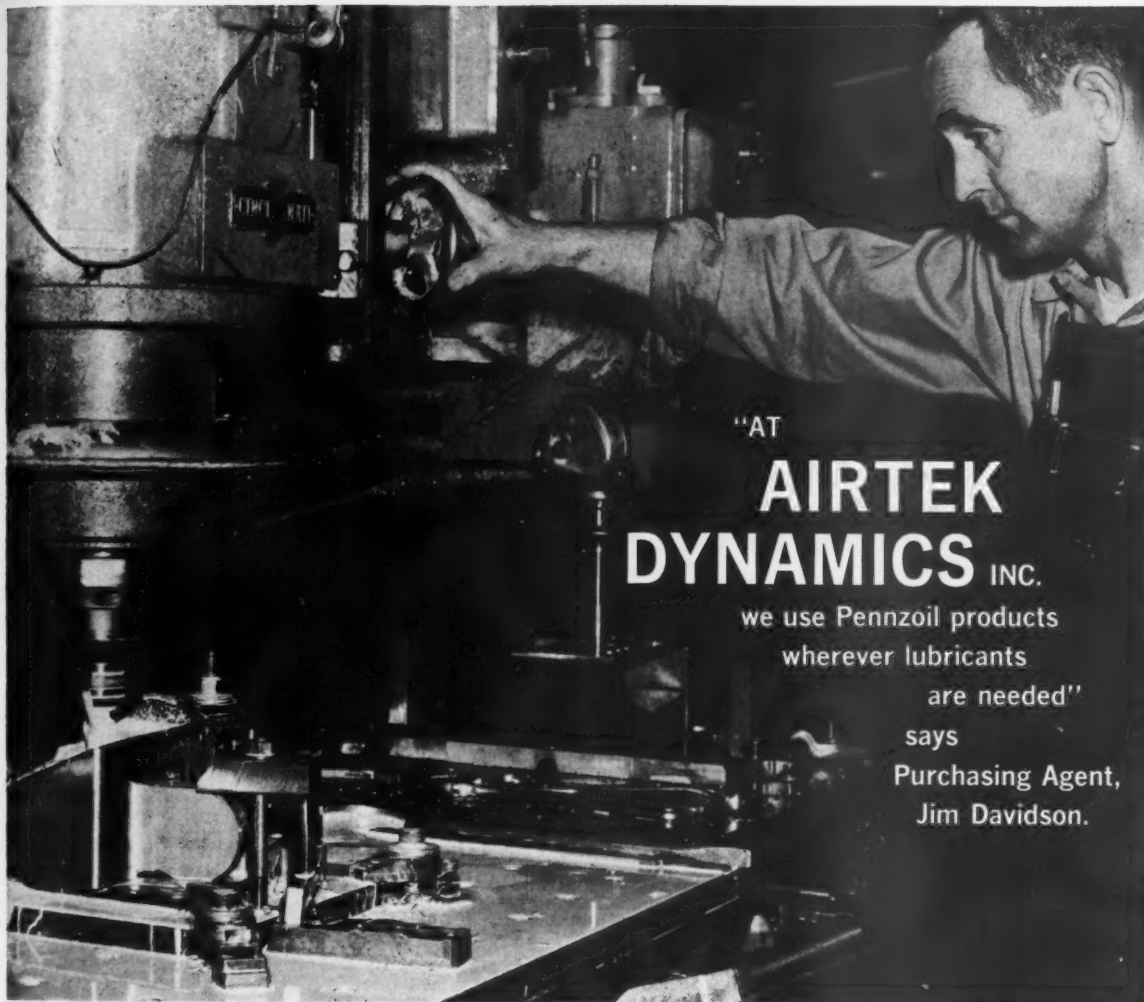
A package of seven case history bulletins describe paper handling techniques with materials handling equipment by major printing or paper warehousing suppliers. Describes most efficient and economical methods of handling rolls and flat paper during warehousing, in-plant movement, order picking, shipping and receiving. *Lewis-Shepard*

. . . FOR YOUR COPY, CIRCLE NO. 117

SOURCES FOR PLASTICS

Catalog of materials for fibrous glass reinforced plastics includes a complete range of fiber glass fabrics and fibers, polyester and epoxy resins and catalysts, parting agents, and pigments. Gives thumbnail descriptions of properties and recommended applications. Also lists fiber glass cloths, tapes, and woven rovings. *Cadillac Plastic & Chemical Co.*

. . . FOR YOUR COPY, CIRCLE NO. 118



"AT
**AIRTEK
DYNAMICS INC.**

we use Pennzoil products
wherever lubricants

are needed"

says
Purchasing Agent,
Jim Davidson.

Pennzoil products are tough, stable, and dependable. They hold down wear and extend machine life regardless of operating conditions or the nature of the job. The photo below shows an AIRTEK machinist working an aircraft part made from an alloy steel which has been heat treated to 220/240,000 PSI. Pennzoil's Parmax No. 3, a light viscosity oil being used as the cutting fluid, will not discolor the work. Other Pennzoil products used on this machine include Pennzlube 701, a lithium base lubricant with extreme pressure additives. Above, working a missile part for Northrop Aircraft. AIRTEK DYNAMICS INC. specializes in complex airframe and missile components made from exotic materials for the aircraft industry. Their reputation for quality is well established. Only quality products and materials are used in production. Only quality products are produced.



THE PENNZOIL COMPANY, 1630 WEST OLYMPIC BOULEVARD, LOS ANGELES 15, CALIFORNIA
Branches and Distributors to serve you in principal western state cities.

... for more details, circle No. 32 on Reader Service Postcard



New General Electric Gear Motor Center Offers WESTERN Industry

24-HOUR Gear-motor Shipment, Modification and Service

General Electric's new Gear Motor Center for mechanical power transmission products is now in full operation at San Francisco.

Serving 11 states, the facility assures western industry of ample stocks of drives and parts, expert modification—and 24-hour repair service. Popular ratings of gear-motors, speed reducers and mechanical adjustable-speed drives are on hand for immediate shipment or for modification to meet special requirements.

In addition, the Center is staffed to handle application and installation engineering to help you solve your drive problems. Order service personnel process your order quickly. General Electric after-sales service helps protect you from costly down time.

Additional western facilities backing up the Gear Motor Center are G.E.'s nine Apparatus Service Shops, 90 Electric Motor Service Stations, as well as sales offices staffed with technical personnel in all major cities.

851-11

GENERAL  ELECTRIC



GENERAL ELECTRIC OFFERS A COMPLETE LINE OF LOW-SPEED DRIVES 1/8 TO 200 HP

Select from General Electric's PLUS LINE of compact mechanical power transmission equipment! A full range of ratings is available—most directly from stock.



General Electric
Palydyne® Drive



Integral-type
Gear-motor



Right-angle Shaft
Gear-motor



All-motor Gear-motor



Footed Speed Reducers



Shaft-mounted
Speed Reducers

If you have a drive problem or want information on how G.E.'s Gear Motor Center can help you, write:

G. D. Tobias
Western Sales Manager
Gear Motor & Transmission Components Dept.
General Electric Company
1098 Harrison Street
San Francisco, California
or contact your nearest G.E. Apparatus Sales Office.

GENERAL  ELECTRIC

SHEAR-SEAL VALVES

Catalog gives complete data on new cylinder operated shear-seal valves that are available in 4-way, 3-way, and shut-off flow patterns. Includes psi ratings, port sizes and information on cushioned or non-cushioned cylinders for air pressure and oil or water pressure. *Barksdale Valves.*

... FOR YOUR COPY, CIRCLE NO. 119

AIR BLOW GUN

An all new air blow gun designed for easy handling and maintaining accurate control of the air stream is described in this bulletin. Illustrated, the bulletin covers design, natural finger pressure, trigger action, flow of air, hook and trigger, and extension nozzles. *Perfecting Service Co.*

... FOR YOUR COPY, CIRCLE NO. 120

ENGINEERED RUBBER

Booklet deals with molded rubber parts and bonding rubber to metal. Describes vibration mounts, O-rings and gaskets, silicon modified rubber, special resistant elastomers, and diaphragms. Calendaring and extrusions are discussed. Includes glossary of rubber words and terms, and a performance chart of neoprene, butyl and others. *Stoner Rubber Co., Inc.*

... FOR YOUR COPY, CIRCLE NO. 121

REMOTE-READING FLOW METERS

Flow meters of the electrical remote reading type for steam, water, oil and special liquids are described and illustrated in this bulletin. Explains principles and engineering features, including typical electrical circuits, flow charts, piping and boiler arrangements and piping requirements for orifices, flow nozzles and venturi tubes. *Republic Flow Meters Co., Sub. Rockwell Mfg. Co.*

... FOR YOUR COPY, CIRCLE NO. 122

WORM GEAR SPEED REDUCERS

This 66-page book introduces a new line of fan-cooled worm gear speed reducers in 25 types and over 135 sizes. Illustrated with application photos and lists equipment on which the reducers are frequently used. Selection data includes rating tables arranged according to speed as compared to ratio, with the full complement of reducer sizes listed on individual pages for given RPM. *Link-Belt Co.*

... FOR YOUR COPY, CIRCLE NO. 123-

← ... for more details, circle No. 33 on Reader Service Postcard

TOOL CATALOG

New 67-page catalog of twist drills, reamers, end mills, countersinks, counterbores, carbide tools, tool bits and special tools contains illustrations and specifications. Also information on special purpose step drills, subland or multi-cut drills and helpful drill facts. *Chicago Latrobe*

... FOR YOUR COPY, CIRCLE NO. 124

ELECTRICAL CONNECTORS

Catalog covers new line of electrical connectors and accessories for copper and aluminum wire. Includes split bolt, vise grip, service entrance, various clamps, parallel connectors, aluminum compression sleeves, solderless terminal lugs, ground clamps and straps. *Western Insulated Wire Co.*

... FOR YOUR COPY, CIRCLE NO. 125

ATOMIC ENERGY FACILITIES

Bulletin describes and portrays some of company's accomplishments in design and construction of reactors. Includes information on resources and services the company's Atomic Energy Div. can provide along with a discussion of technical personnel and research and production facilities devoted to atomic energy problems. *Alis-Chalmers Mfg. Co.*

... FOR YOUR COPY, CIRCLE NO. 126

HANDLING WITH ONE MAN CREW

Two companion publications include a terminal freight handling analysis form and a one man crew booklet that enable an engineered approach to solving dock layout problems plus a system of utilizing one man as a stripper, checker and loader. The booklet describes a system where each employee works for increased productivity and more flexible operation. *Lewis-Shepard.*

... FOR YOUR COPY, CIRCLE NO. 127

HELIWELDING EQUIPMENT

The advantages of heliawelding for hard-to-weld metals and alloys are discussed in this 23-page bulletin along with a line of heliawelding equipment. Covers manual equipment for all-around general welding and maintenance; semi-automatic equipment for continuous production line welding; fully automatic equipment for continuous welding of any contour, and accessories for special requirements. *Air Reduction*

... FOR YOUR COPY, CIRCLE NO. 128

STEEL STORAGE EQUIPMENT

A line of phosphatized steel storage equipment is presented in this bulletin. Describes and illustrates angle shelving, T-line shelving, steel lockers, book case shelving, steel cabinets, wire basket storage units and service truck shelving. Includes design, construction and dimension data. *Penco Div., Alan Wood Steel Co.*

... FOR YOUR COPY, CIRCLE NO. 129

PALLETLESS HANDLING BENEFITS

Brochure illustrates how the cost of handling cased and cartoned goods can be substantially reduced through use of a new lift truck attachment which eliminates the need for pallets. Covers equipment, methods and savings. Field reports, prepared from case studies, detail individual handling operations. *Hyster Co.*

... FOR YOUR COPY, CIRCLE NO. 130

VALVE FOR COPPER TUBING

Circular lists in detail the size and dimensions of firm's gate, globe and check solder joint valves. Each type is illustrated with a cutaway picture that shows the flow path of fluids through the valve body. Includes instructions on how to make a sound solder joint. Explains advantages of the valve for use on copper tubing. *Walworth Co.*

... FOR YOUR COPY, CIRCLE NO. 131

AUTOMATED CUTTING MACHINE

A newly introduced automated cutting machine is fully described in this brochure. Explains new photocell tracer and new cross roll drive for exceptional cutting accuracy and efficiency. Discusses double carriage construction, automated features and tracing accuracy. Includes diagrams as well as floor plan and cutting ranges. *Linde Co., Div. Union Carbide Corp.*

... FOR YOUR COPY, CIRCLE NO. 132

ABRASIVES FOR THE WELDER

Bulletin of abrasive products for the welding trade includes photos and descriptions of raised hub disc-wheels for weld grinding plus blending and finishing in light metal fabrication, for high speed stock removal, grinding in deep joints, rugged and fast cutting performance and a disc for work-hugging applications. *Bay State Abrasives Products Co.*

... FOR YOUR COPY, CIRCLE NO. 133

VARIABLE CAPACITY PUMP

Bulletin describes a new line of variable capacity rotary pumps. Explains in detail the unique principle of operation that gave rise to the new Vari-flo pump design that makes it possible to dial any desired flow rate without changing pump speed. Includes cutaway illustrations of four basic models. *Blackmer Pump Co.*

... FOR YOUR COPY, CIRCLE NO. 134

FORK TRUCK OPERATOR'S GUIDE

Pocket-size manual gives full information on new feature of company's fork lift truck, a foot-controlled power application which eliminates clutch, transmission, differential, drive line and shifting mechanism. Manual also discusses lift operating, load techniques, safety, accessories and maintenance. *Towmotor Corp.*

... FOR YOUR COPY, CIRCLE NO. 135

FIBER GLASS DUCT INSULATION

Brochure describes lightweight, blanket-type fiber glass insulation for heating or air conditioning ducts or combination heating-cooling ducts. Illustrates standard application methods for all types ducts and lists moisture barrier materials. Shows Government specifications and UL's fire hazard rating. *Johns-Manville*

... FOR YOUR COPY, CIRCLE NO. 136

WELDED STEEL PIPE MANUAL

Spiral-bound 40-pager includes illustrated application stories, advantages of the product and how the pipe is made. Also special properties, standard specifications, size range, practices and tolerances. Discusses linings and coatings, deflection in beam resistance and data for the designer. *Armco Drainage & Metal Products, Sub. Armco Steel Corp.*

... FOR YOUR COPY, CIRCLE NO. 137

NEW TYPE POROUS METAL

Technical bulletin on a new type of porous metal made by wire winding techniques. Covers both filtration and non-filtration applications of the metal. Typical applications are listed together with outstanding features which include an extremely wide size range of the finished porous metal structures. *Bendix Filter Div., Bendix Aviation Corp.*

... FOR YOUR COPY, CIRCLE NO. 138

MOTORIZED PULLEYS

Selection catalog gives specifications and dimensions for the latest models of standard Schrock motorized pulleys. Four charts help determine selection of the proper pulley for a specific installation. Factors included are horsepower, pulley diameter, belt speeds and widths. *Western Conveyor Co.*

... FOR YOUR COPY, CIRCLE NO. 139

GUIDE FOR SELECTING VALVES

Thumb indexed, this is a handy illustrated guide for selecting valves, boiler mountings and lubricated devices. The valves are grouped according to steam pressure and water, oil and gas ratings so that it is easy to refer to the thumb index showing the valves for the required pressure. *Lunkeneimer*

... FOR YOUR COPY, CIRCLE NO. 140

SILVER ALLOY BRAZING

Glossy 24-page bulletin is devoted to low temperature silver alloy brazing. Discusses silver content and melting temperatures of a group of special alloys, their advantages, proper joint design, six simple fundamental brazing steps, two methods of applying the brazing alloy, heating methods, typical uses and finishing. *Handy & Harmon*

... FOR YOUR COPY, CIRCLE NO. 141

ANODES, PLATING CHEMICALS

A line of nickel, cadmium, brass and bronze, copper, lead and zinc anodes, anode accessories and chemicals for electroplating and metal finishing are described and illustrated in this bulletin. Specifications and recommended applications are given for several styles of anode bags, and the seven types of anodes. *Hanson-Van Winkle-Munning Co.*

... FOR YOUR COPY, CIRCLE NO. 142

TOOL AND DIE HANDBOOK

Improving production from tools and dies is the subject of this illustrated handbook. Discusses the six fundamental factors involved in the performance of tools: design, selecting the grade of tool steel, machining of tools and dies, heat treatment, grinding as well as the proper handling and use of tools. *Bethlehem Steel Co., Pacific Coast Div.*

... FOR YOUR COPY, CIRCLE NO. 143

FIRST AID KITS

Bulletin details contents of four types of first aid kits which are packaged in all-weather cases engineered to hold unit-size packages of dressing or treatment. Includes illustrations of the kit which features an open lid that serves as a shelf when the kit is mounted to a wall or vehicle. *Mine Safety Appliance Co.*

... FOR YOUR COPY, CIRCLE NO. 144

POWER UNITS FOR MH VEHICLES

Bulletin covers complete line of power units for material handling vehicles. Featured are detailed illustrations, complete product information and specifications for gas, diesel and LP-gas power units. Drawings show applications of the units on every major material handling truck and tractor. *Ready-Power Co.*

... FOR YOUR COPY, CIRCLE NO. 145

MATERIALS HANDLING CATALOG

A wide variety of plant and warehouse handling equipment that has been standardized in dimension and capacity is described in this catalog. Items include stacking storage bins with a 4-way lift truck entrance, automatic dump boxes with gravity latch lock and automatic side dump trailer trucks. *Palmer-Shile Co.*

... FOR YOUR COPY, CIRCLE NO. 146

VERSATILE STEEL SHELVING

Steel shelving to meet any industrial need is presented in this 31-page booklet which describes a new compression clip that speeds erection, provides quick rearrangement, sturdiness and economy. Illustrates reinforced shelves, rack and closed type units with dividers and bin fronts, counters and tool room assemblies. *Republic Steel Corp., Berger Div.*

... FOR YOUR COPY, CIRCLE NO. 147

NEW CONCEPT ENGINE

Bulletin includes cross-sectional views of this engine which illustrate advantages of the advanced engineering features. Includes engine and power unit specifications. Describes as ideal for handling pumping projects, refrigeration, saw mills, conveyors, pit and quarry equipment, construction machinery and many types of portable equipment. *Allis-Chalmers*


... FOR YOUR COPY, CIRCLE NO. 148

WESTERN INDUSTRY/JUNE 1960




... the mark of superior quality in

CENTRIFUGAL CASTINGS

 **CENTRIFUGAL** ... the name that more and more manufacturers throughout the West recognize as a mark of superior quality in centrifugal castings. They know that Centrifugal means superior strength, greater density and cleaner metal. They know too, that at Centrifugal, quality control is rigidly maintained through every step of the process. Precision control of melting, pouring, spinning speed and temperature insures dependable consistency job after job. The Centrifugal plant is one of the largest and best equipped in the West, and includes facilities for testing, machining, heat treating and sand casting. All this adds up to one thing. Centrifugal is the name to remember for better castings at a better price.

Free brochure ... For complete details see the new Centrifugal brochure and learn how you can save time and money with the improved quality of your centrifugal castings. Why not write today?



Representatives in principal cities throughout the West

CENTRIFUGAL

CASTING COMPANY

3245 Cherry Avenue, Long Beach 7, California

... for more details, circle No. 34 on Reader Service Postcard

RADIO BASE STATION EQUIPMENT

Complete descriptions of two-way mobile radio base station equipment are contained in this booklet. Includes specifications and photos of upright cabinets, remote control and desk top consoles and special AC utility base stations. *Motorola Inc., Communications and Industrial Electronics Div.*

... FOR YOUR COPY, CIRCLE NO. 149

SPECIAL TRUCK OR STANDARD

Brochure for material handling engineers who have unusual handling problems. Illustrations show how both types of trucks are presently being used by industry. Discusses the standards versus specials, covering respective advantages and disadvantages. *Automatic Transportation Co., Div. of Yale & Towne Mfg. Co.*

... FOR YOUR COPY, CIRCLE NO. 150

GROWTH OF A WELDING FIRM

Illustrated booklet describes the development of a firm that manufactures a line of welding equipment. Includes photo of the first a-c welder made by the manufacturer and illustrations of the welders now making up the firm's line. Also illustrated, descriptive story of each of the 36 departments making up the organization. *Miller Electric Mfg. Co.*

... FOR YOUR COPY, CIRCLE NO. 151

GATE VALVE IMPROVEMENT

Brochure describes a new line of 150 and 300 pound steel flexible wedge disc gate valves with a new flexible wedge disc. Illustrates operation. Includes design and construction data, design features, materials and design standards. Charts show pressure ratings, material specifications and test pressures. *Crane Co., Industrial Products Group*

... FOR YOUR COPY, CIRCLE NO. 152

FILLER METAL SELECTION CHART

A welding aid for engineers, designers and shop men, this chart quickly specifies correct filler alloys for all recommended wrought alloy parent combinations. Acceptable filler metal alloys are listed for each combination, and rated for ease of welding; strength of welded joint; corrosion resistance; service suitability; color match after anodizing; and ductibility. *Aluminum Co. of America*

... FOR YOUR COPY, CIRCLE NO. 153

NEW FASTENING TOOL

Brochure about an air operated tool designed to set new performance standards on nut-running operations. Includes illustrations and specifications of the tool as well as a discussion of its features: 20 per cent more power and 200 per cent faster rundown. *Ingersoll-Rand Co.*

... FOR YOUR COPY, CIRCLE NO. 154

INDUSTRIAL SAFETY EQUIPMENT

Safety hooks with a pin lock for use on hoists and pullers are featured in this catalog listing types and sizes, selection and specifying. Also data on safety insulated links for cranes and hoists; mechanical back-up alarms for motor and lift trucks, tractors and crawlers; safety truck steps and safety auto belts. *E. D. Bullard Co.*

... FOR YOUR COPY, CIRCLE NO. 155

METALS MANUAL

General data as well as stock lists and prices of cold finished carbon bars; stainless steel sheets, plates and bars; commercial alloy bars; and aluminum sheets, plates and bars are set forth in this thumb indexed manual. Includes comparison of cold finished carbon steel bars and also a comparison of stainless steels. *Republic Supply Co. of Calif.*

... FOR YOUR COPY, CIRCLE NO. 156

GEAR SHAVING ESSENTIALS

Comprehensive illustrated reference manual about basic gear production and gear shaving information. Covers cutting errors, cold work and fire distortion; basic shaving principles; mechanics of gear shaving; cutter characteristics; accuracy of shaved gears; crossed-axes principle; cutting and guiding action. *National Broach & Machine Co.*

... FOR YOUR COPY, CIRCLE NO. 157

WELDING OF NEW METALS

Welding of the newer metals and the problems that may be encountered are covered in this reprinted article in bulletin form. The review covers PH stainless steels, ultra-strength steels, Rene 41, beryllium, zirconium, molybdenum, tantalum, and columbium. Contains tabular presentation of process data on four of these new metals. *Air Reduction Pacific Co., a Div. of Air Reduction Co., Inc.*

... FOR YOUR COPY, CIRCLE NO. 158

UNITIZING CASES OF CANS

An ideas-in-action report tells how a company uses steel strapping to unitize cases of canned food. Shows how use of this method cut box car loading time by 50 per cent because the packs permitted full use of mechanical handling equipment. Pictures the operation in four steps. *Apex Steel Co.*

... FOR YOUR COPY, CIRCLE NO. 159

OSCILLOGRAPH APPLICATIONS

Manual illustrates the versatility of a recording oscillograph. Designed as a reference guide for engineers and scientists, the booklet contains 18 case history descriptions. Included are detailed reports of applications in providing high-frequency analog data in industry and diesel engine testing. *Heiland Div., Minneapolis-Honeywell*

... FOR YOUR COPY, CIRCLE NO. 160

LAMINATED PLASTICS GUIDE

Manual combined with a quick-reference chart of characteristics for 21 commonly-used laminate grades. Includes thumbnail description of high-pressure laminates; difference between minimum and maximum property values and average values; where and why laminate property values differ from specifications properties listed for metals. *Taylor Fibre Co.*

... FOR YOUR COPY, CIRCLE NO. 161

PERFORATED METAL DATA

Engineering data for complete specification of heavy-gauge perforated metal is outlined in this 40-page brochure. Covers applications as screens, strainers, dryers, separators, supports, guards, ventilators and drains. Includes directions for pattern specification, dimensions, and unit weights. *Cross Perforated Metals, National-Standard Co.*

... FOR YOUR COPY, CIRCLE NO. 162

SUPER-FINISHES WITH DIAMOND

Relative technical and economic advantages of finish grinding, honing and lapping with natural diamond are discussed in this publication. Covers application of techniques in close tolerance and high finish work on cemented carbides, glass, ceramics and on a number of hard ferrous alloys. *Industrial Diamond Div., Engelhard Hanovia, Inc.*

... FOR YOUR COPY, CIRCLE NO. 163

NOW YOU GET METAL WITH BUILT-IN FINISHING SAVINGS



Faster production and up to 40% cut in polishing costs are made possible by superfine-grain structure of Formbrite® Drawing Brass

The jeweler's finish which Accurate Forming Corp., Franklin, N. J., gives pen caps and barrels previously meant the use of five polishing heads and a time bottleneck in production—resulting in a high polishing “cost factor.” After switching to Red Brass-Formbrite, they use two polishing heads for a light cut and another for a simple color buff and run the machines faster. Savings run up to 40%. The secret of Formbrite is its superfine grain, produced by special rolling and annealing techniques. Formbrite is springier, harder, more scratch-resistant than the usual drawing brasses in the same standard tempers, yet retains remarkable ductility for forming and drawing. Despite its superiority, *Formbrite* costs no more than ordinary drawing brass. Get full details

from your Anaconda representative or write: The American Brass Company, 14900 Garfield Ave., Paramount, Calif. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

5930/PC

FORMBRITE
SUPERFINE-GRAIN DRAWING BRASS AN
ANACONDA®

product made by The American Brass Company
... for more details, circle No. 35 on Reader Service Postcard



SPECIAL MANUALS

FOR YOUR FREE COPY, CIRCLE APPROPRIATE KEY NUMBERS ON POSTCARD, p. 84

LUBRICANTS, PAINTS, COATINGS, ROOFING . . .

Asphalt Mastic Wearing Surface

A surface coating for industrial and work floors is the subject of this bulletin. Discusses use of the material for restoring worn and uneven floors, both wood and concrete, as well as application on new floors. Includes properties of the material, specifications, advantages and uses. *Industrial Products Div., Flintkote Co.*

. . . FOR YOUR COPY, CIRCLE NO. 200

Heat-Proof Protective Coatings

Four types of protective coatings to meet every temperature condition and to stop corrosion and destruction of metals is described in this bulletin. Data on each type, where to use, temperature range and color, how to apply, drying time and coverage are listed for each of the four types of coatings. *Markal Co.*

. . . FOR YOUR COPY, CIRCLE NO. 201

A Metallic Lubricant

Booklet about a special metallic lubricant designed to reduce the cost of lubrication. Discusses compounds available in all standard grades and weights of oils and greases, including a special open gear lubricant and high temperature lubricants. Points out the inclusion of additional elements in this metallic lubricant and basic advantages of its use. *Imperial Oil & Grease Co., Inc.*

. . . FOR YOUR COPY, CIRCLE NO. 202

Anti-Rust Finishes

Booklet explains the proper use of new rust-inhibiting finishes and gives complete instructions for protecting all kinds of metal, indoors and out. Discusses selection of the right primer, getting the metal ready to paint, putting on the right primer and includes a handy finishing schedule of primers and topcoats. *E. I. Du Pont De Nemours & Co., Finishes Div.*

. . . FOR YOUR COPY, CIRCLE NO. 203

Roof Coatings and Primers

Among roof coatings described in this brochure is an aluminum asphalt coating for metal or structural steel that is also excellent as an interior finish for industrial buildings where its high reflectivity aids in lighting efficiency. Includes application information and descriptions of an asbestos roof coating, an aluminum asbestos coating, a utility coating, a priming solution, plastic cement, and a waterproofing compound. *Standard Oil Co. of Calif.*

. . . FOR YOUR COPY, CIRCLE NO. 204

New Method of Paint Priming

A primer base that minimizes blistering and flaking of paint on a variety of surfaces including metal, wood and smooth masonry is described in this bulletin. Discusses advantages of the non-pigmented primer which is not subject to oxidation, listing its physical properties and a suggested formulae. *Minnesota Mining & Manufacturing Co.*

. . . FOR YOUR COPY, CIRCLE NO. 205

Chemical Resistant Floor Coating

Bulletin gives complete data on a resinous coating modified with abrasive pigment for chemical resistance, hard wear, patch repair, anti-skid properties, and ease of handling. Discusses usage, characteristics of the floor coating, how it is applied as well as resistance data, color, suitable surfaces and cure time. *International Chemical Co., Inc.*

. . . FOR YOUR COPY, CIRCLE NO. 206

Protective Coating for Insulation

Brochure illustrates and describes a tough and durable finish for insulated hot or cold lines, tanks and equipment, cold rooms, and air-conditioning ducts. Contains samples of the seven colors available for indoor and outdoor use. Discusses fire resistance, maintenance, use as a lagging adhesive; use as a primer and general data. *Armstrong Cork Co., Insulation Div.*

. . . FOR YOUR COPY, CIRCLE NO. 207

Abrasive Compound for Anti-Skid Surfacing

Brochure about a new synthetic-latex abrasive compound that makes anti-skid floor resurfacing and crack filling jobs easy and economical. Discusses advantages of the new material for use on floors, stair threads, ramps, loading docks and industrial building maintenance. Outlines instructions for mixing and using; includes illustrations. *Carborundum Co.*

. . . FOR YOUR COPY, CIRCLE NO. 208

Aluminum Batten Roof System

Bulletin describes a new all-aluminum batten roof system for use on monumental and commercial buildings with large roof areas. It is especially suited for pitched roofs of any rafter length, and slopes 1½ inches in 12 inches or steeper. Discusses features including weather-tightness, positive anchorage, long life and light weight. Covers installation and available finishes. *Aluminum Co. of America.*

. . . FOR YOUR COPY, CIRCLE NO. 209

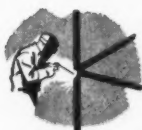
WHATEVER YOU MAKE...

whether you...

Form it



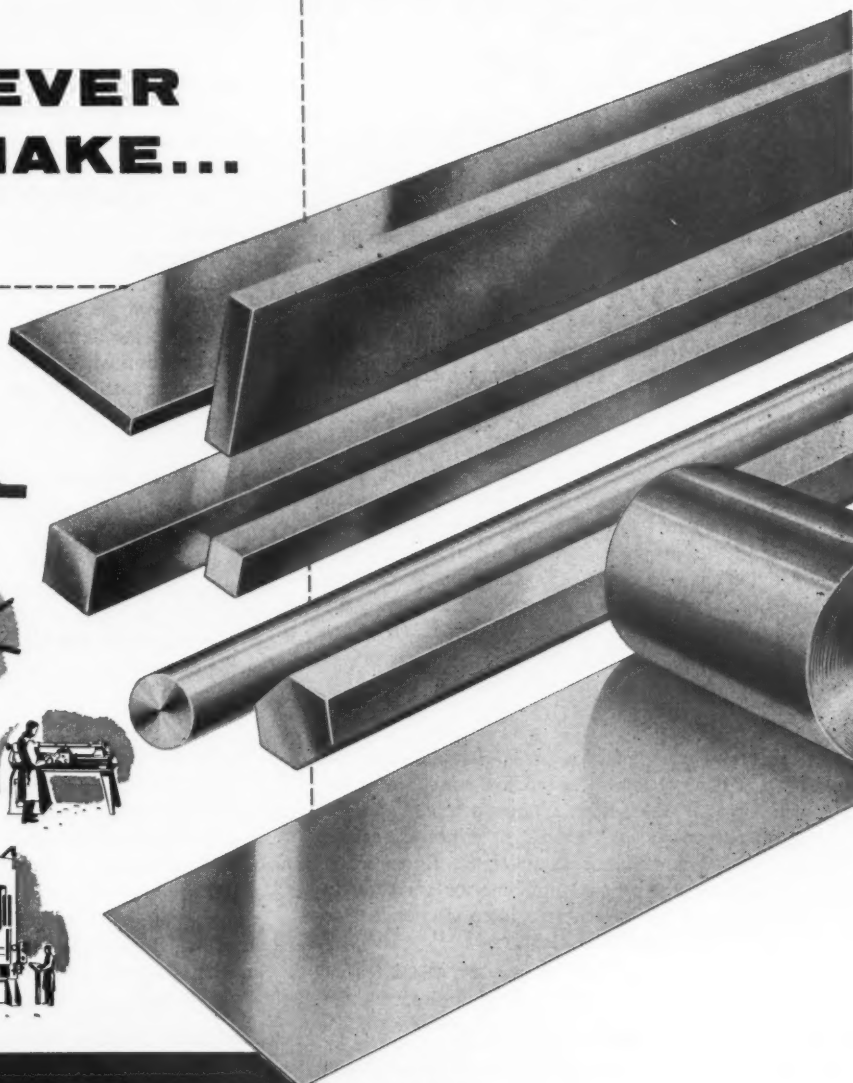
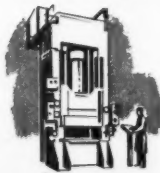
Weld it



Machine it



Stamp it



get your **METALS**
from **REPUBLIC!**

STEEL:

Cold Finished Bars • Alloy Bars
Stainless Bars, Sheets and Plates

ALUMINUM:

Bars, Sheets, and Plates

Excellent Inventories
Fast Order Processing
One Day Deliveries
Personal Attention
Technical Assistance

let **republic supply** *your needs!*

THE REPUBLIC SUPPLY COMPANY OF CALIFORNIA

2600 Eastland Avenue, Los Angeles 54 • RAymond 3-2511 • PArkview 8-7151

An independently owned and operated company serving Western industry

... for more details, circle No. 36 on Reader Service Postcard

Sheet-Board for Roofing, Flooring

Brochure explains the facts about Sheet-board, a paneled sheathing grade lumber for use in roof, floor and side-wall sheathing. Describes strength, weatherability, economy, insulation data, workability and quality. A specification guide covers materials and installation. *Western Pine Association*

... FOR YOUR COPY, CIRCLE NO. 210

Coal-Tar Protective Coatings

Booklet describes complete line of coal-tar protective coatings particularly suitable for application on buried or immersed steel and concrete structures due to their inherent resistance to water penetration, chemical and stress conditions. Includes detailed specifications, resistance properties and typical uses. *Allied Chemical Corp., Plastics and Coal Chemicals Div.*

... FOR YOUR COPY, CIRCLE NO. 211

Color Cards of Industrial Finishes

Some 64 shades available in lacquers, synthetics, vinyls, and specialty finishes in a complete scale of lustres at six levels are included in this brochure of finishing materials for every industrial purpose. Contains descriptions of each finish including enamels, catalytic coatings, plastic coatings, wrinkles, rubber base finishes, primers, paper coating and adhesives, and epoxy finishes. *United Lacquer Mfg. Corp.*

... FOR YOUR COPY, CIRCLE NO. 212

Paint Specifications

Prepared for usage in the West, this manual opens with a discussion of general conditions such as condition of surfaces, priming and back priming, color samples and materials. A chart lists exterior and interior types of surfaces or finishes and recommended material to use. Recommended specifications cover exterior and interior surfaces, interior clear woodwork finishes and interior chemical resistant surfaces. *W. P. Fuller & Co.*

... FOR YOUR COPY, CIRCLE NO. 213

New Process of Solid-Film Lubrication

Brochure explains principles of a new process, outlining its basic applications and cataloging a special series of lubricants and protective coatings developed for certain extreme lubrication needs. The process, applicable on both metallic and non-metallic surfaces, is a lubricative pigment with high load-carrying strength, a low co-efficient of friction, chemical inertness, a natural affinity to metals and ability to retain these characteristics up to 1,900 degrees F. *Almasol Corp.*

... FOR YOUR COPY, CIRCLE NO. 214

Heavy-Duty Oils for Diesels

Handbook of technical information about a heavy-duty oil for diesel engines covers history and development of compounded oils, petroleum proving ground, functions and properties of modern lubricating oils. Discusses viscosity, detergency and peptizing action, bearing corrosion preventive properties, ability to minimize wear and freedom from foaming tendencies. A seven page chart in the back of the book lists oil recommendations for 36 makes of engines. *Standard Oil of Calif., Western Operations, Inc.*

... FOR YOUR COPY, CIRCLE NO. 215

Re-roofing with a Brush

A colored aluminum roof coating that will coat metal, asphalt, masonry, or stucco roofs and siding with a thick, reflective, impermeable, permanently colorful finish is described in this bulletin. Discusses general features and specifications including coverage, drying, weight, application, colors and composition. *Wilbur & Williams Co., Inc.*

... FOR YOUR COPY, CIRCLE NO. 216

Painting vs. Molding in Color

Booklet presents the case for painting to achieve special matched color plastic parts, including facts, figures and charts. This involves painting thermoplastic items molded from white virgin styrene or reprocessed plastic rather than molding in the desired color. The booklet points out that there are cases where painting pays, and others where molding in color is still the best. *Bee Chemical Co., Logo Div.*

... FOR YOUR COPY, CIRCLE NO. 217

New Mineral-Based Lubricant

A newly developed lubricant for reducing galling, seizing and metal pick-up is introduced in this brochure. Describes the advantageous features of the lubricant and gives examples of its usage in any shop to cut the wear-in period, for machine tool care, to reduce fretting, relieve highly-loaded gears, for threaded connections, cold metal forming and press fitting. *Alpha-Molykote Corp.*

... FOR YOUR COPY, CIRCLE NO. 218

Fusion Bond Finishes

Bulletin describes line of fusion bond finishes specially formulated for use with the fluidized bed method of coating. Discusses advantages of these resin powders of various types and includes a selector chart in which their cellulose, vinyl, epoxy, nylon and polyethylene finishes are listed, showing the performance resistance of each to chemicals as well as the mechanical, electrical and decorative qualities of each. *Polymer Corp.*

... FOR YOUR COPY, CIRCLE NO. 219

Anti-Seize Sealing Compound

Descriptive data about an anti-seize sealing compound for protecting and sealing threaded fittings. Discusses flexibility of the compound for production, assembly and maintenance usage. Covers its miscellaneous uses, temperature and seizure control, capacity of sealing low to high pressures for propane, butane, gasoline and petroleum oils, its non-poisonous, non-corroding, non-oxidizing and non-hardening qualities and easy application. *Armite Laboratories*

... FOR YOUR COPY, CIRCLE NO. 220

Kel-F® Polymers

Bulletin gives full data on chemical structure and general properties of KEL-F® Halofluorocarbon polymers which contain a unique balance of chemical, mechanical and electrical properties that give the material extreme chemical resistance, high compression strength and wide temperature utility. Discusses applications in the electrical industry for insulation and wire coating; molded, extruded or machined insulating parts and in the chemical industry and related fields. *Minnesota Mining & Mfg. Co.*

... FOR YOUR COPY, CIRCLE NO. 221

Permanently Homogenized Thread Compound

Brochure describes a new formula for an anti-seize thread compound for high temperature service through which the compound retains its homogenized consistency. Covers features of the improved formula, application on piping assemblies for high pressure or hot service, and directions for applying the lubricant. *Crane Co.*

... FOR YOUR COPY, CIRCLE NO. 222

Solventless Epoxy Coatings

New explosion-proof epoxy resin coatings which protect against weathering, acids and abrasion are described in this technical bulletin. Lists features, physical properties, application, coverage data and spray equipment. Uses include concrete floor and wall finish; tile-like interiors for labs, food processing; interiors of trucks, refrigerator cars and ships and many others. *H. B. Fuller Co.*

... FOR YOUR COPY, CIRCLE NO. 223

Fire-Retardant Paints

Booklet explains the protective action of fire-retardant paint on both combustible building materials and structural metal. Describes how it is applied in all types of industrial buildings to improve personal safety and reduce potential fire damage. Discusses relative costs of materials and labor in applying conventional decorative paints and fire-retardant paint. Includes an explanation of UL's flame spread ratings. *Albi Mfg. Co., Inc.*

... FOR YOUR COPY, CIRCLE NO. 224

Dry Film Lubricant

Brochure explains the basic principles of a new bonded dry film lubricant to be used to lubricate any of the metals of construction such as carbon and stainless steel, aluminum, brass, bronze, magnesium, cadmium as well as glass, plastic and wood. Discusses features of the new moly base lubricant that requires no surface pre-treatment prior to application. Covers features of the material. *Poly Chem, Inc.*

... FOR YOUR COPY, CIRCLE NO. 225

Thin Film Coatings

Brochure contains information on the properties of fluorocarbon coatings, silicones, epoxy resins and other coatings and their application as thin film coatings to solve product and production problems. Gives examples of successful applications that have frequently simplified operations, increased production rates, cut costs and improved finished products. *Industrial Coatings Div., National Glaco Chemical Corp.*

... FOR YOUR COPY, CIRCLE NO. 226

Versatile Industrial Proteins

This 40-page booklet describes numerous uses for an alcohol-soluble protein and a new mild aqueous alkali dispersible protein. Gives nature and properties, solubility and compatibility, formulas and preparation methods are thoroughly discussed and illustrated with charts, tables and curves. Also covers present and projected uses for corn proteins for paper coatings, paints, inks, varnishes, cork seals, floor finishes, fusion resins and release coatings. *Corn Products Div., Corn Products Sales Co.*

... FOR YOUR COPY, CIRCLE NO. 227

Milwaukee SAWZALL

all-purpose electric hacksaw

Cuts
Maintenance
Costs
Fast!



• Maintenance crews using SAWZALL and genuine MILWAUKEE "SAWZALL" Blades, designed for high-speed cutting, are equipped for low-cost, fast, easy sawing through any sawable material. *Cuts through 3" of 1/4" steel in 37 seconds.* Plunge-cuts in wood or like materials, cuts any shape, saws close, right or left. SAWZALL is recommended by users for fast roughing-in or scroll cutting.

BUILT TO TAKE IT: Simple, rugged reciprocating mechanism stands up on toughest sawing jobs. Full ball and roller bearings.

DESIGNED FOR TIGHT SPOTS: Blade straddle mounted and centered for close sawing, right or left.

POWERFUL: Full 1/3 H.P. Milwaukee-built motor. Runs cooler, won't overload, overheat!

WIDE BLADE ASSORTMENT: 49 genuine SAWZALL blades. A size and type for every sawing need. DeLuxe blades for even faster sawing, longer blade life.

Ask your Distributor or write —



*
MODEL 6500 SAWZALL
complete with sample
blade assortment and
sturdy, steel carrying case.

MILWAUKEE ELECTRIC TOOL CORPORATION

West Coast Factory Branches 216 - 11th St., San Francisco 1, Calif.
2569 W. Olympic Blvd., Los Angeles 6, Calif.

... for more details, circle No. 37 on Reader Service Postcard



NEW EQUIPMENT

FOR WESTERN PLANT OPERATION, PRODUCTION AND MAINTENANCE

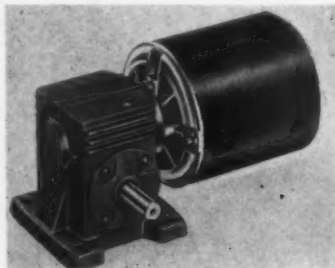


USE RIP OUT POSTCARD, PAGE 84, FOR MORE INFORMATION ON PRODUCTS DESCRIBED

MOTORIZED SPEED REDUCER

... small size; in 1/20 hp and .035 hp input range

Compact assembly for space-saving design features this newly introduced motorized speed reducer. The horizontal right angle drive is powered by specially designed 1/20 horsepower or .035 horsepower



motors, and provides a full range of output speeds from 43.8 to 350 revolutions per minute. A simple, standard mounting bracket permits easy mounting in many positions without mechanical alteration. *Boston Gear Works.*

... FOR MORE DETAILS, CIRCLE NO. 300

ALUMINUM OXIDE ABRASIVE

... especially for stainless steel billet and slab grinding

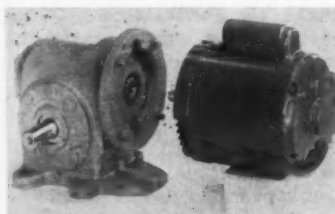
Extensive laboratory and initial field tests show this newly developed abrasive capable of removing twice as much metal per wheel as the best grinding wheels previously used. Fast rate of cut and long wheel life reduced the total cost per pound of metal removed by as much as 40 per cent. The advantages of the new abrasive seem to be of prime importance in the rough grinding of stainless steel. *Norton Co.*

... FOR MORE DETAILS, CIRCLE NO. 301

"C-FLANGE" GEARMOTOR

... standard NEMA motor and reducing unit are flange connected

Maximum versatility and adaptability are built into these new "C-Flange" gearmotors which are available off the shelf in a wide variety of capacities and reductions. Motor and reducer are separate, flange connected,



so the unit is furnished either as a complete assembly, or the reducer alone for application to standard NEMA motors. When drive conditions change, either motor or reducer may be changed without scrapping the other element. Capacities range from 1/12 to 2 hp, reductions from 5:1 to 60:1. *Morse Chain Co.*

... FOR MORE DETAILS, CIRCLE NO. 302

NEW FORMULATION OF MEK PEROXIDE

... safer catalyst for polyester reinforced plastics industry

Development of a safer formulation of methyl ethyl ketone peroxide has been introduced as a result of an extensive three-year research program. The new product is described as the safest room temperature catalyst yet developed. Named High Point 180, the new product has a minimum flash point of 180 degrees F and as high a flash point as 220 degrees F. In addition to the high safety factor of reduced fire hazard, the product provides uniform and rapid curing characteristics. *U. S. Peroxygen Corp.*

... FOR MORE DETAILS, CIRCLE NO. 303

MARKING NAILS

... of copper and aluminum; offer permanent identification

Three types of marking nails are available for identification and dating of such property as electrical apparatus, utility poles, R. R. equipment, as well as buildings, patterns and tools. The marking nails are offered in copper or aluminum and can



be had with depressed lettering or relief lettering with protective outer rim. The nails can be numbered consecutively to 9,999, show up to three lines of lettering, or even show company trademark. *John Hassell, Inc.*

... FOR MORE DETAILS, CIRCLE NO. 304

POWER-DRIVEN STAIR CLIMBER

... hand truck climbs up and down stairs with loads to 500 lbs.

An electrically driven hand truck that will climb up and down stairs at 18 ft. per minute has been introduced. For operation, an up-down switch is engaged and the motor drives two specially designed heavy-duty rubber belts over stairs, propelling the cart and load. Belts four-inches wide, are made of pre-stretched rubber material and can be easily adjusted to provide maximum tension on the drive pulleys. The operator only has to guide and balance the load, reducing physical strain and danger of merchandise damage. The hand truck measures five feet long and two feet wide. *New Design & Development Corp.*

... FOR MORE DETAILS, CIRCLE NO. 305

FROM STOCK



THE NEW M109 Ratiomotor (foreground) for horizontal right angle drives is furnished with 1/20 hp or .035 hp motor. Output speeds range from 43.8 to 350 RPM. New standard mounting bracket shown

permits easy mounting in many positions. The NEW MW109 (in hand), for horizontal parallel drives, is also furnished with 1/20 hp or .035 hp motor. Output speeds range from 1.9 to 70 RPM.

NEW Ratiomotors meet demand for BOSTON Gear efficiency in "pint-size" power packages

Now, you can get BOSTON Gear quality and lasting economy in speed reducers for drives as low as .035 hp. Two new units, designed for space-saving, provide a wide range of output speeds.

When you need worm-gear reducers, you'll find any type and ratio you want in

the big line of over 1600 BOSTON Gear 100 Series Reducers and Ratiomotors . . . and you can get it FROM STOCK. Catalog No. 57, with the NEW PRODUCTS Supplement, lists full information. Get your copy. Boston Gear Works, 88 Hayward St., Quincy 71, Mass.

Advt. copyright by Boston Gear Works

CALL YOUR
NEARBY **BOSTON** Gear
DISTRIBUTOR

— STANDARDIZATION PAYS —



Ask Distributor for
NEW PRODUCTS
SUPPLEMENT
to Catalog No. 57

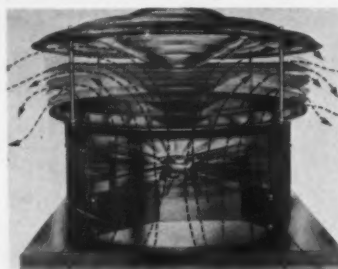
. . . for more details, circle No. 38 on Reader Service Postcard

POWER ROOF EXHAUSTER

... industrial ventilating system has automatic damper design

This new model power roof exhaust-er features com-pletely automatic operation. The spun-aluminum cone shaped damper is lifted by the column of discharged air and seated against the weather-dome cover, diverting the flow of air radially to discharge all around the circumference of the unit. When the fan is turned off, the damper settles back and closes the exhaust opening, providing a weather tight seal. Weather-dome support and damper guide rods are neoprene coated for a smooth, gliding operation as the damper automatically opens and closes. *Genie-Air, Inc.*

... FOR MORE DETAILS, CIRCLE NO. 306



THERMAL WELLS

... for high pressures; available in three styles

Pressures up to 3000 psi at 600 degrees F, or 2000 psi at 700 degrees F, can be handled by this line of newly introduced thermal wells. The new wells are available in three styles: coupling head, hex head, and with a moisture-sealed, tamper-proof cover. All three styles are type 316 stainless steel with heliarc welded junctions. *Fenwal Inc.*

... FOR MORE DETAILS, CIRCLE NO. 307

COLORS PRESSURE-SENSITIVE TAPE

... has applicable temperature range from -100 to 400 deg. F

A variety of new extreme temperature, pressure-sensitive teflon tapes have been introduced in 10 bright colors. The tape, designed in accordance with NEMA standards, is .006 ins. thick, has high dielectric strength, low power factor and negligible moisture absorption. Specifically designed for color-coding in electrical applications, the tape is also being used as a non-stick, low friction surfacing where identification by color is desired, or where continuity of design and decor is important. It is available in 18 yd. rolls, in widths from 1/4 to 2 ins., and by the lineal yd. 12 ins. wide. *Connecticut Hard Rubber Co.*

... FOR MORE DETAILS, CIRCLE NO. 308

FINISHING PROCESS TESTING MACHINE

... evaluates metal finishing qualities, buffs and compounds

A new machine has been introduced to enable manu-facturers of buffs, compounds and base metals as well as metal-working finishing plants and departments to study and evaluate finishing process variables. The machine consists of a cabinet base that houses the mechanism for moving sample materials and a standard adjustable lathe on which the buffing wheel is mounted. The part samples are mounted by toggle clamps or magnetic means on plates spaced 40-in. apart on an over-and-under conveyor arrangement. As each platen passes under the buffing wheel, the wheel pressure is accurately measured by a beam scale. Each material is subjected to the same set of process conditions. *Acme Mfg. Co.*

... FOR MORE DETAILS, CIRCLE NO. 309

Most complete local source for...

PRODUCTS & SERVICES and everything else you need

inol.....IV sec 3-5500
tel.....TP sec 2-1373
p.....Clviro 3-6538
Irmo. I A sec 5-2171
IV inoi -3-3861



Stices Inc 211- 8 Avon...
Tnc Grocebu Co Civ sec...
708-5 411...
Tnacci Vi Fccr Proccul
51C St Patic A ..
Unite I Cccci Ltc..



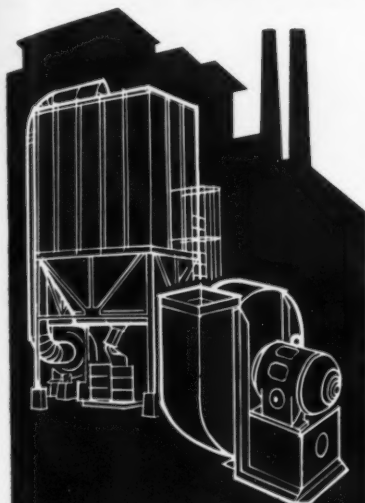
Complete and compact—the Yellow Pages. It's your best local source for everything you need in your business. That includes brand names too. They're listed with their dealers under the product or service heading. For everything you need turn to the Yellow Pages—your most complete local source.

You'll find everything fast in the...



... for more details, circle No. 39 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

54 YEARS SERVING WESTERN INDUSTRY



REES STOPS DUST REMOVES WASTE

For 54 years REES experience and know-how have provided Western Industry with solutions to air pollution, dust control, industrial ventilation, pneumatic conveying, air handling, blast cleaning, and sheet metal problems.

AIR POLLUTION AND DUST CONTROL
Rees Cloth Tube Dust Arrestors
Wet Scrubbers
Centrifugal Separators

FANS
Mill Type Exhausters
Non-overloading Type Exhausters
High Pressure Blowers

AIR BLAST CLEANING EQUIPMENT
Standard Air Blast Rooms
Special Air Blast Rooms

For information, call or write:

SEATTLE
W. G. Carrie
16339 Stone Avenue

SALT LAKE
Sales Engineering Co.
263 Grass Avenue

DENVER
Materials Handling Equipment Co.
1795 Sheridan Blvd.

EL PASO
Hirsch Brothers Machinery Co., Inc.
1901 Basset Avenue

REES

BLOW PIPE

MANUFACTURING CO., INC.


2929 5th STREET, BERKELEY 10, CALIF.
5714 MORGAN AVE., LOS ANGELES 11, CALIF.


... for more details, circle No. 40
WESTERN INDUSTRY/JUNE 1960



FOLLOW THIS MAN!


He's saving time
with a
new **Snap-on**
Tool Truck





Up a stairway on a hurry-up job,  nothing to it
with the big, 10-inch diameter, semi-pneumatic balloon tires.

Emergency repair work across the plant,  compact Tool Truck carries full tool selection to the job.

Job in another building,  the Tool Truck
eases heavy loads over rough pavements or tracks. Drawers
are held shut during travel by a padlocked bar. 

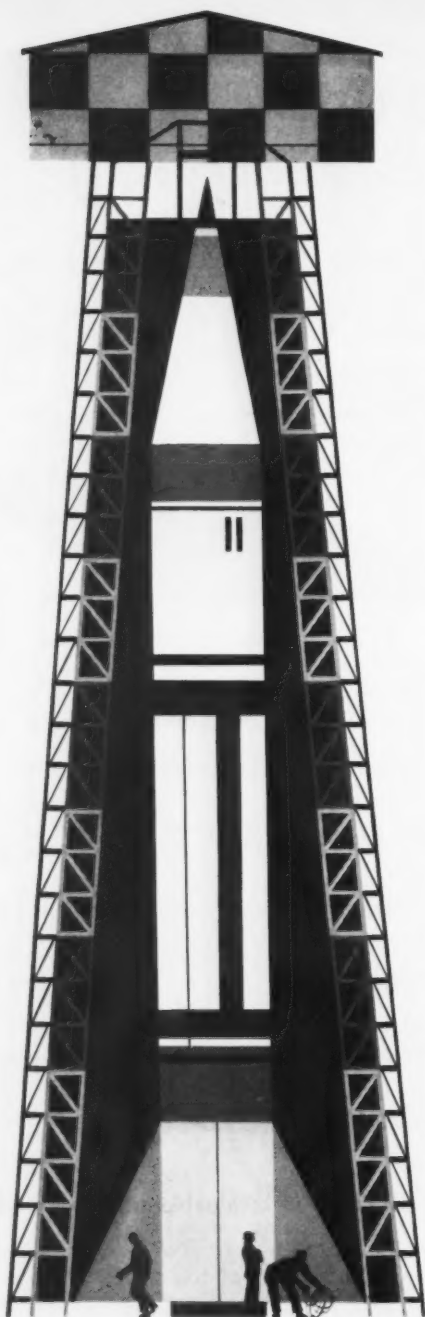
The new Snap-on Tool Truck is invaluable wherever tools
or parts transport is needed. Plenty of tool space with four
husky drawers. 

Upper panel section is par-
titioned for nuts, bolts, parts.  Ample storage space
throughout. 

A demonstration will prove the
Tool Truck's money-saving ability.
Call your nearest Snap-on branch or
write us direct.

FOR ALL INDUSTRY
SNAP-ON TOOLS
8032-F 28th AVENUE • KENOSHA, WISCONSIN

... for more details, circle No. 41 on Reader Service Postcard



Rockets and Missiles

...another great Southern California industry that utilizes the modern, complete banking facilities and specialized experience of California Bank.

CALIFORNIA BANK

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

THE BUSINESS-MINDED BANK SERVING
THE INDUSTRIAL CENTER OF THE WEST

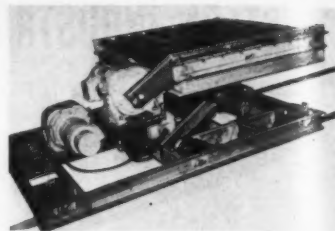
... for more details, circle No. 42 on Reader Service Postcard

78

LIFT TABLE ON TRANSFER CAR

... lift table is in the 4000 pound capacity range

An innovation in material handling equipment is the incorporation of hydraulic lift tables with transfer cars such as are required in many automated lines for moving work from one station to another. The scissors-type lift table pictured is mounted to travel on an inverted angle track. The table is used for either loading or unloading sheets on pallets at the start and completion of a process. There are three 1 hp. motors on the table, one each for elevating loads, powering the roller conveyor, and for propelling the car along the track at 25 ft. per minute. The rollers also move loads off and on the table at 25 ft. per minute. Throwing a lever causes skate wheels to move up between the rollers so that empty pallets can be moved off and on at right angles to the movement of the loaded pallets. *West Bend Equipment Co.*



... FOR MORE DETAILS, CIRCLE NO. 310

WELDING TWEEZERS

... miniature tool for delicate and precise welding

New handpiece model welding tweezers are capable of performing delicate operations in areas not accessible by standard welding techniques. The unit features continuously adjustable pressure from 8 ounces to 2 pounds, detachable tips, excellent repeatability and a variety of tips that permit the welding of many metals from aluminum to special alloys. *Pacific Scientific Instruments Laboratory*

... FOR MORE DETAILS, CIRCLE NO. 311

COPPER BRUSHING MACHINE

... lightweight, features oscillating type spindles

This new unit, called the No. 10 copper brushing machine, is an economical, one-man unit, designed to meet the needs of cleaning copper tubes and fittings on even small installations. The No. 10 supplements the firm's heavy-duty model. It cleans the I. D. of fittings and deburrs and cleans the O. D. of tubing

by power, eliminating slow hand operations. Capacity is 1/2 in. through 4 ins. An exclusive feature of the machine is the oscillating type spindles. The oscillating motion does a quick, efficient cleaning job and at the same time tends to conserve brush life. The machine is equipped with six spindles so that six different size fittings can be cleaned without changing brushes. *Oster Mfg. Co.*



... FOR MORE DETAILS, CIRCLE NO. 312

WESTERN INDUSTRY/JUNE 1960

ANTI-SEIZE LUBRICANT

...for use on metals operating at high temperatures

Repeated use of this newly formulated anti-seize lubricant on soldering tip threads helps to reduce seizure and resultant breakage on tips and heating units. Heat transfer is greatly improved by use of the special lubricant as the material guards against tip freezing and protects against corrosion. Another advantage of repeated use is that tip and heating unit life may be considerably lengthened. Available in two ounce tins. *Ungar Electrical Tools, Inc.*

... FOR MORE DETAILS, CIRCLE NO. 313

VERSATILE STORAGE RACK SYSTEM

...features unique load locking device; installs without tools

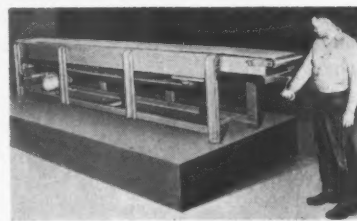
Key to the security and ease of assembly of this versatile new storage rack system is a safety load-locking device. This consists of a 7/16 in. low carbon, cold formed steel bolt which is an integral part of the beam for maximum assembly strength. The bolt fits snugly into a round hole in the side of the column. It can be locked or unlocked manually with ease; once locked into place the beam cannot be disengaged accidentally. The rack has no loose parts; components are completely prefabricated, ready for manual assembly on the job site without the use of tools. The rack is recommended for heavy duty storage of materials on pallets or skids, for hand storage and for storage of such varied items as dies or drums, pipes or tubing. Ideal for complete utilization of floor to ceiling storage area. Components are made of quality steel, cold formed and finished in a metallic based paint. *Acme Steel Co.*

... FOR MORE DETAILS, CIRCLE NO. 314

NEW TYPE EXTENDABLE CONVEYOR

...quick adjustment for length; firm rigidity in any position

Specifically for use in handling packages and parcels between trucks and docks, or in other areas where loading and unloading are involved, this new type stationary



or portable, extendable conveyor is equipped with a belt riding on a slide bed that extends from a closed length of 15 ft. 4 in. to an extended length of 25 ft. 6 in. It can be lengthened or shortened manually while in operation by means of a simple crank. Available in an 18 in. belt width, the conveyor is designed to handle a live load of 40 lbs. per lineal foot. It will handle a single package weighing up to 200 lbs. Speed may be varied from 30 to 90 ft. per minute. *Standard Conveyor Co.*

... FOR MORE DETAILS, CIRCLE NO. 315

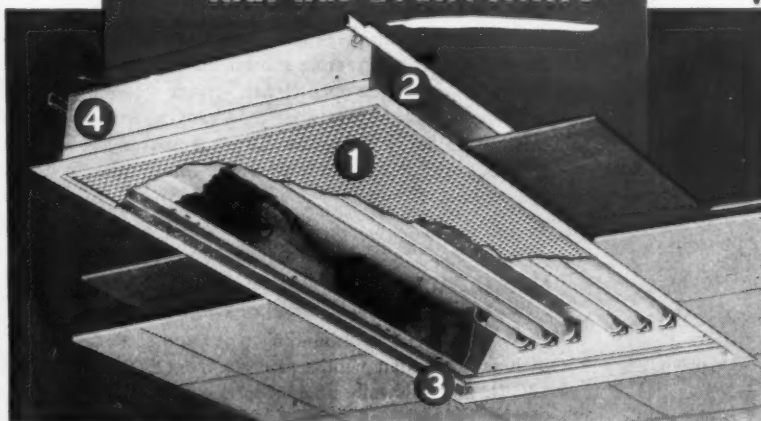
3-WAY PALM-BUTTON VALVE

...corrosion-proof; has a single poppet element

Economical 3-way palm-button valve, with full 1/8 in. and 1/4 in. orifices (0-200 psi). The valve body is made of aluminum and all other parts are of brass. Since the valve measures only 2 in. by 1-9/16 in. by 1 in., it can be mounted in any position by means of the two mounting holes. *Airmatic Valve, Inc.*

... FOR MORE DETAILS, CIRCLE NO. 316

NOW! a Recessed Troffer
that has EVERYTHING



SMOOT-HOLMAN

"WILSHIRE"

2' x 4'

LUMINAIRE

- ① Choice of 8 different diffusers to meet specific lighting needs.
- ② Easy and fast to install... 4 "jacks" flip outward to support fixture on wood or metal furring.
- ③ Leveling screws adjusted from below. No above-the-fixture work necessary after service lines are in.
- ④ Ten mounting styles, tailored to fit various types of ceilings, save man-hours and money.

For the Architect—clean, flush mounted... adaptable to various ceilings... versatility allows complete freedom of design.

For the Engineer—Dependable lighting performance and fixture construction.

For the Electrical Contractor—Housing shipped complete, ready for one-man installation.

For the User-Owner—Years of trouble-free service with a minimum of maintenance expense.

Also available as "BEVERLY" 1' x 4' model

Write for detailed information to

SMOOT-HOLMAN COMPANY
Inglewood, California



... for more details, circle No. 43 on Reader Service Postcard

TUBE-COOLED MOTORS

... designed to operate in unfavorable environmental conditions

These tube-cooled air-to-air heat exchanger motors are built in standard enclosed construction for use in non-hazardous locations and in explosion-proof construction with UL Class 1, Group D Label for use in hazardous locations. Ranging up to 2000 hp, the motors provide protection against excessive moisture, oil vapor, chemicals, alkalis, coolant and airborne dust, sand, dirt, and metallic particles. Application includes pumps, compressors, fans and blowers, mixers, mills, crushers, conveyors, presses, special industrial machinery and refiners. *Louis Allis Co.*



... FOR MORE DETAILS, CIRCLE NO. 317

INSPECTION LABELS

... prevent the shipment of faulty materials

A new series of pressure sensitive inspection labels provides plant management with an efficient tool for speeding materials through production lines. The line includes pertinent labels such as "rejected," "re-work," "accepted," and "calibrated." Featuring bold lettering and carrying space for the inspector's name or number, each is color-coded for quick identification. The adhesive labels require no moistening and cling tightly to a variety of surfaces, yet may be removed easily when desired. *Avery Label Co.*

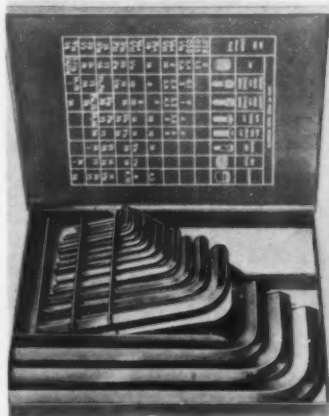
... FOR MORE DETAILS, CIRCLE NO. 318

HEX-SOCKET SCREW KEYS

... in kit form, and size range to fit hex-socket screws

A convenient new key kit holds hex-socket screw keys in a wide range of sizes to fit all except the largest diameter of a line of hex socket screws. The kit holds 18 hex keys in a compact, sturdy metal box. Keys range from the smallest, .028 in., through $\frac{1}{8}$ in. hex diameter and fit all of the firm's line of hex socket screws in that category. The kit also includes new $\frac{7}{64}$ in. and $\frac{9}{64}$ in. sizes for No. 6 and No. 8 "60" series cap screws. The inside cover of the box has a key fit table that shows at a glance the correct key size for each socket screw product. The kit makes it convenient for the worker to keep keys together on the job. A rack inside the metal box tilts keys outward for quick and easy selection. *Allen Mfg. Co.*

... FOR MORE DETAILS, CIRCLE NO. 319



LIFT TRUCK KICKER-CLAMP

... designed to increase log handling efficiency

A combined log kicker and clamp attachment for 2 and 4-wheel drive lift trucks in the 15,000 to 20,000 lb. capacity range has been introduced. The hydraulically-operated attachment mounts on Hyster Challenger 150, 160, 180 and 200 lift trucks. The kicker utilized a pair of push-off arms to roll logs off heavy-duty load arms. Clamp arms which have a maximum opening of 144 inches, swing through a 105-degree arc to hold logs on the forks. With kicker and clamp combined, the same hydraulic cylinders operate both sets of arms in sequence. As the clamp begins to open, the kicker is inactive. As clamp arms continue their opening swing, the kicker arms are automatically actuated to push the logs off the forks. *Hyster Co.*

... FOR MORE DETAILS, CIRCLE NO. 320

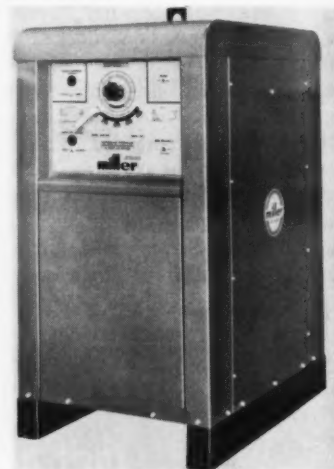
BALANCED WAVE WELDER

... arc stability without high frequency

Perfect balance throughout the entire welding range even during crater elimination, plus arc stability without high frequency at as low as 18 amperes are among the features of this new welder. The d-c component is completely removed resulting in balanced wave welder circuits and specially designed transformer. Arc-outs during the weld cycle are impossible.

Electrical control gives accurate low voltage regulation from panel or any remote station. A voltage reducer automatically lowers the open circuit voltage when arc is struck or broken. Five separate welding ranges, with wide overlap, insure the proper current range for any job. Range control switch plus infinite fine adjustment rheostat control for each of five ranges are on panel. *Miller Electric Co.*

... FOR MORE DETAILS, CIRCLE NO. 321



STEEL BUILDINGS

... pre-engineered; feature revolutionary roof structure

A new line of steel building types and sizes for industry include clear-span widths ranging from 5 ft. 4 in. up to 120 ft. and sidewalls up to 40 ft. In addition, there is a whole new series of buildings with a single slope roof and in widths up to 24 ft. A new choice of roof slopes is offered in the self-framing and rigid-frame buildings from 8 ft. to 120 ft. wide between the new low silhouette roof (2:12 pitch) or the more traditional 4:12 pitch. A continuous beam-type purlin system in the roof of rigid-frame and truss-type buildings is another feature. Roof framework is lighter and more rigid. Purlines are above the rafters, out of the way of wiring, sprinklers, ductwork, insulation and other equipment. *Armco Drainage & Metal Products.*

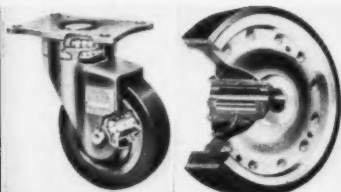
... FOR MORE DETAILS, CIRCLE NO. 322

**FREE
MANUAL**
helps you select

DARNELL

CASTERS & WHEELS

for any application



1 RUBBER TREADS

... a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

2 RUST-PROOFED

... by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

3 STRING GUARDS

... Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

4 LUBRICATION

... all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

*Engineered and Built
for UNFAILING PERFORMANCE
—That's The Big Difference!*



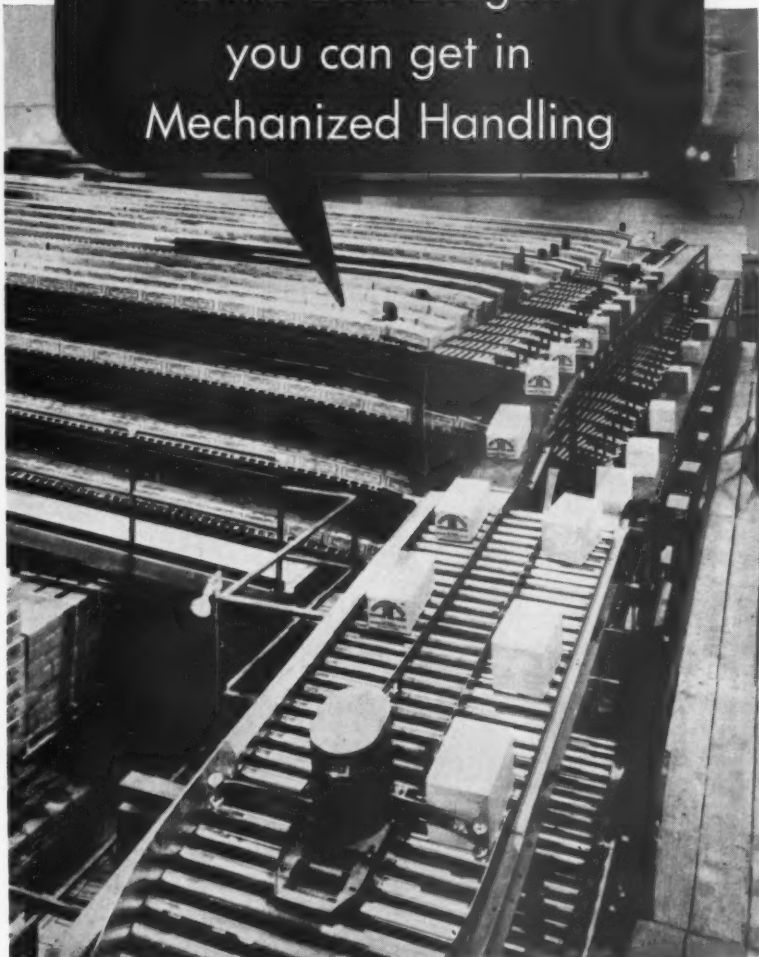
Send for
Your **FREE**
Copy...

DARNELL CORPORATION, LTD.

DOWNEY (Los Angeles County) CALIF.
37-28 SIXTY-FIRST, WOODSIDE 77, L.I., N.Y.
36 NORTH CLINTON ST., CHICAGO 6, ILL.
1000 PEACHTREE N. E., ATLANTA, GA.

... for more details, circle No. 44
WESTERN INDUSTRY/JUNE 1960

Outstanding Performance
is the Best Bargain
you can get in
Mechanized Handling



• Many plant operating people responsible for specifying conveying systems today are demanding equipment that is right for *them*—that will fully meet *their* individual requirements. They are looking beyond the price—to design and quality.

Mathews Engineers are giving these people a complete conveyer service—from the first proposal through installation—and equipment that is delivering outstanding performance.



GENERAL OFFICES MATHEWS CONVEYER COMPANY
Ellwood City, Pennsylvania
WESTERN DIVISION MATHEWS CONVEYER COMPANY WEST COAST
San Carlos, California
CANADIAN DIVISION MATHEWS CONVEYER COMPANY, LTD.
Port Hope, Ontario, Canada

Over Fifty Years of Leadership in Mechanized Handling
MATHEWS

... for more details, circle No. 45 on Reader Service Postcard

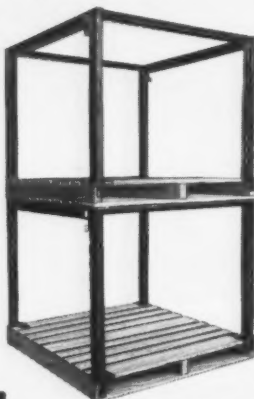
NEW STURDI-BILT PALLET RACKER

Converts standard pallets into
LOWEST-COST portable racks

- Provides most rigid racking ever offered
- Takes heavier loads.
- Stacks ceiling-high
- Assembles faster

This new STURDI-BILT hardware enables you to safely palletize anything . . . regardless of size, shape or weight. Sturdy? Handles up to 12,000 lbs. per stack . . . with no twist or sway. So versatile, too. Amazingly low in cost!

For FREE data, attach the coupon to your letterhead.



Sturdi-Bilt

Material Handling Div. (WI-60)
Union Asbestos & Rubber Co.
332 S. Michigan, Chicago 4, Ill.

☐ Without cost or obligation, please send me full details on the new STURDI-BILT Pallet Racker.

... for more details, circle No. 46 on Reader Service Postcard

STEEL & TUBES

ROUNDS

SQUARES

RECTANGULARS



**FOUCAR, RAY
& SIMON**

175 TOWNSEND STREET
SAN FRANCISCO 7, CALIF.



Seamless & Welded
Carbon & Alloy
SHELBY™ Seamless
Welded Steel Tubing

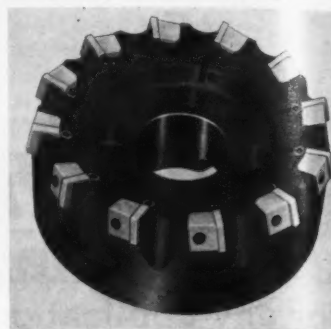
— also —
Steel Bars
HOT & COLD FINISH
Carbon & Alloy Grade
PROMPT DELIVERY
Call EXbrook 2-5975

... for more details, circle No. 47 on Reader Service Postcard

MILLING CUTTERS

... eliminate expensive cutter grinding and blade resetting

Milling cutters that offer the advantages and economies of indexable "throw-away" insert tooling in heavy-duty milling operations are available in five sizes. Square inserts, each with eight accurately positioned cutting edges, are held in the cutter



body at a 15-degree positive peripheral cutting edge angle, and at 7-degree negative axial and radial rake angles to provide the most effective and efficient cutting action. Thick wedges serve as seats for the inserts. They are locked in or released quickly from the cutter body by double-end screws which tighten or loosen the wedges on the inserts. Kennametal Inc.

... FOR MORE DETAILS, CIRCLE NO. 323

UNITIZED HYDRAULIC MECHANISM

... designed for one-half ton series elevating trailers

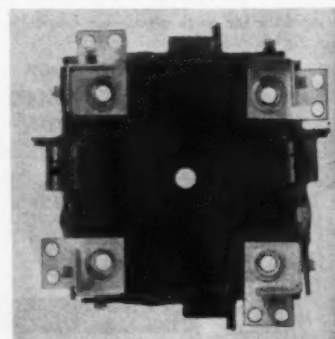
Simplicity of the new design of this unitized hydraulic system substantially reduces the number of component parts, resulting in increased efficiency, easier and more positive lowering and elevating action, and greater reliability with minimum maintenance. The new system consists of a single hydraulic pump and cylinder unit acting through steel coil springs to absorb road shock. The assembly is compactly designed for mounting to the underside of the trailer chassis. When the trailer body is in riding position, the hydraulic system is disengaged and the load is locked to an independent spring suspension system which provides a smooth level ride under normal road and yard hauling conditions. Trailevator, Div. Magline, Inc.

... FOR MORE DETAILS, CIRCLE NO. 324

DIODE BOARDS

... need only 4 solder connections for full wave bridge circuit

Design of a new line of diode boards permit the snapping of diode leads into clips, thus facilitating simplified diode replacement and eliminating the danger of diode failure resulting from soldering heat. Boards accommodate diode having leads ranging from 22 to 18 gauge wire. Plus and minus marks are stamped into the bridge board to simplify correct diode polarization. Bridge and insulator boards are made of 1/16 in. thick canvas base phenolic, grade CE. Overall height including insulator board is 21/32 in. Minarik Electric Co.



... FOR MORE DETAILS, CIRCLE NO. 325

EMULSION COATINGS

... cold applied; feature low permeability

Two new cold applied protective coatings are highly resistant to permeation by chemicals. One is a heavy duty protective coating particularly suited for intermittent splash and high chemical "fallout" areas. This new polymer emulsion can be applied by brush, roller or spray and is intended for use on structural steel, for deck areas and on sheet piling. Its resistance to abrasion and high temperature tolerance (up to 400 degrees F) extends the range of use. The second coating has been successfully used to adhere cellular glass insulating blocks to storage tanks and to underground piping, and as a general purpose insulation mortar. *Koppers Co., Inc.*

... FOR MORE DETAILS, CIRCLE NO. 326

UNIQUE DEBURRING TOOL

...for applications involving irregular hole surfaces

Deburring and chamfering of the angularly drilled holes in automotive crankshafts has always been a costly problem to auto manufacturers. This newly introduced deburring tool automatically follows the hole configuration and produces a chamfer of relative uniformity and symmetry. The operation is extremely fast, requiring neither jigs, fixtures or skilled operators. A conical pilot is easily directed in the hole using a low-speed, portable air drill motor. The deburring operation may be performed as parts progress along a conveyor line or while palletized between successive machine stations. *Nobur Mfg. Co.*

... FOR MORE DETAILS, CIRCLE NO. 327

TWO NEW TYPES OF BRICK

...break-through in refractories for aluminum melting furnaces

Two new types of brick and a companion mortar are now available which are highly resistant to the severe conditions imposed by molten aluminum alloys. Low in silica and made to a special formulation, the new high alumina brick have been designated Lo-Sil and Lo-Sil Super. Lo-Sil Super brick have been recommended for use in hearths of furnaces that must withstand the most severe service conditions or are used to produce the highest quality of metal. Lo-Sil is being offered for use under less severe conditions. *Kaiser Refractories & Chemicals Div.*

... FOR MORE DETAILS, CIRCLE NO. 328

Specify
**DAYTON
DUCTILE
IRON**

CALL
**NEVADA
6-1251**



DAYTON FOUNDRY

HOLLYDALE, CALIFORNIA

... for more details, circle No. 48 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

REPAIR YOUR ROOF FOR LITTLE MORE THAN THE COST OF MATERIAL ALONE




with easy to use HORN DRI-N-TITE

All you need is Horn Dri-N-Tite and one of your own personnel. You can repair and maintain your roof *without additional help*. You eliminate most of the Big Cost—Labor. Figure the cost per square, per year of service—there's economy in Dri-N-Tite.

To provide you with the correct product for each type of roof maintenance problem. Horn offers four individual Dri-N-Tite products, each with a specific purpose. They may be used alone, or in combination, to provide maximum protection.

- To patch asphalt roofs, use DRI-N-TITE PLASTIC. It's a heavy-bodied, trowel applied patching compound. Stops leaks around flashings, gutters, vents, ducts, etc.
- To re-vitalize asphalt roofs, use DRI-N-TITE PRIMER. It resaturates the dried-out surface. And then . . .
- To give maximum protection, use DRI-N-TITE LIQUID. It's a heavy-bodied, fibrated asphalt coating. And, like all four Dri-N-Tites, it contains Horn's 9C, Dispersing and Wetting Agent, which permits the vital oils and blended asphalts to penetrate deep down and bond to the original roofing surface.
- To keep your building cool, use DRI-N-TITE ALUMINUM. A heavy-bodied, fibrated, asphalt, aluminum roof coating containing over 3 pounds of aluminum paste per gallon. The sun's rays are reflected, giving a decrease in temperature of 15°F.-20°F. to the area below.



A. C. HORN COMPANIES
Division
SUN CHEMICAL CORPORATION
550 Third Street, San Francisco, California

SAVE ON ROOF MAINTENANCE. Please send me without obligation:

☐ HORN DRI-N-TITE INFORMATION
☐ HORN 110 PAGE CONSTRUCTION DATA HANDBOOK
☐ Please have a local HORN representative call and make a FREE roof maintenance survey and advise if repairs or re-coating is necessary.

Name
Title
Company
City Zone State
Plants and Warehouses Conveniently Located Throughout the West W6

... for more details, circle No. 49 on Reader Service Postcard

Babbitt Adjustable SPROCKET RIM with Chain Guide CHANGES THAT DANGER ZONE TO A SAFETY ZONE



The distance between the floor of your plant and your overhead valves is a DANGER ZONE when piled up boxes or even ladders are used to reach the valves. Turn it into a SAFETY ZONE — equip your overhead valves with Babbitt Adjustable Sprocket Rims with Chain Guides.

- They simplify pipe layout.
- They fit any size valve wheel.
- They are easy to install and operate.
- They operate any valve from the floor.
- They save time and money.
- The first cost is the only cost (no maintenance).
- They are packed completely assembled (one to a carton), with easy-to-follow instructions.
- A hot-galvanized rust proof chain is available for all sizes.

Babbitt Adjustable Sprocket Rims with Chain Guide are carried in stock by most mill supply houses. If your supplier does not carry them, contact us direct.

Babbitt STEAM SPECIALTY CO.

13 BABBITT SQUARE, NEW BEDFORD, MASS., U.S.A.

... for more details, circle No. 50 on Reader Service Postcard



Complete AIR CONTROL

REGULATOR—FILTER—LUBE

gives an accurate, steady flow of air, efficiently lubricated and filtered free of condensate and dirt.

Protects air operated tools and equipment from pressure surges, scoring, rusting and damage due to "dirty" air. Gives long trouble free service.

- Less Maintenance
- Less costly repairs
- Less down-time

PSC

Refill lubricator without stopping operation or shutting off air.

Compact, combination—easy to install—only 2 connections.

Write for Bulletin No. 80 listing complete line of regulators, lubricators, filters, drain traps, dehumidifiers, and blow guns.

PERFECTING SERVICE CO.

332 Atendo Ave. Charlotte, North Carolina
Baltimore - Buffalo - Chicago - Cleveland - Camden - Los Angeles
New York - Providence - Montreal - Toronto, Canada

... for more details, circle No. 51 on Reader Service Postcard

AIR BRUSH

... for use where no compressed air supply is available

By teaming up an air brush with a canned power supply, this manufacturer has created a versatile and useful tool for many painting and finishing problems. The pressurized can will operate the air brush for 30 minutes of intermittent spraying. A single hose



connects the can to the air brush; hook-up and change-over are simple and easy. The air brush carries its own material or paint supply in an attached bottle. Spray pattern is adjustable from round to fan, with all intermediate patterns. Directional accuracy is good enough to eliminate the need for masking in most operations. *Binks Mfg. Co.*

... FOR MORE DETAILS, CIRCLE NO. 329

BACK-UP RINGS

... increase seal effectiveness and O-ring life

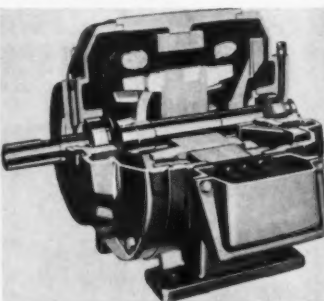
A line of continuous back-up rings for O-ring-in groove installations have been developed that are quickly and easily installed and are low in cost. Designed with a concave shape to prevent O-ring extrusion and increase lubrication of the O-ring, they are continuous one-piece rings without spiral or cuts and thus avoid the possibility of cutting O-rings due to improper installation or worn back-ups. The back-up rings are moulded of a specially developed compound which is resistant to practically all fluids, gases and air, including fire resistant fluids. They may be used in all standard pressure systems and have a temperature range from minus 85 deg. F to 350 deg. F. *Parker Seal Co.*

... FOR MORE DETAILS, CIRCLE NO. 330

WEATHERPROOF MOTORS

... with an epoxy encapsulated insulation system

A-c weatherproof motors feature stator windings that are thoroughly encapsulated in a specially formulated epoxy resin for resistance to moisture, oils, dust, chemicals, acids and alkalies. The bearings, exposed internal metal surfaces, hardware, and mechanical parts are also protected against damage from the elements and contaminating atmospheres in all types of indoor and outdoor applications. The insulation system is built around the thixotropic (it won't change form with heat) epoxy resin which is applied by a unique vacuum impregnation process. Motors are available in frames 180 through 445U (1 through 125 hp) in all standard speeds and voltages. *Reliance Electric & Engineering Co.*



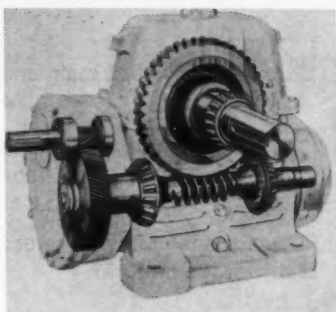
... FOR MORE DETAILS, CIRCLE NO. 331

WORM GEAR SPEED REDUCERS

... fan-cooled, 25 types, 135 sizes in new line

Line of newly introduced speed reducers are right-angle drives which adapt compact, high speed motors to modern production machines. They can operate at high input speeds and cover the range from fractional to large hp. motors as demanded by industry. They offer low output speeds with ample capacity for heavy loads, assuring smooth, quiet transmission of power with minimum maintenance. Automatic lubrication is provided by a splash system between the oil reservoir and internally cast channels to the bearings except on the low-speed shaft, where grease fittings are provided. Ratios range from 5:1 to 3600:1, with torque ratings up to 135,000 lb. inches and hp. ratings up to 150. The new speed reducers having housing that combine strength, rigidity and ample cooling area. The fan cooling and other design refinements allow the size of these units to be reduced while retaining their high load carrying capacity. The new speed reducers have housings that combine capacity. The completely new line of fan-cooled worm gear speed reducers are available in 25 types and over 135 different sizes. Oil seals are furnished on all shaft openings.

Link-Belt Co.



... FOR YOUR COPY, CIRCLE NO. 332

WE CAN BUILD THE PRESS YOU NEED



We specialize in the construction of hydraulic presses, either bench or floor, for every purpose in the fields of rubber and plastic moulding, laboratory testing and graphic arts. Write for circular.

Complete line of Standard Presses:
will modify to suit your need.

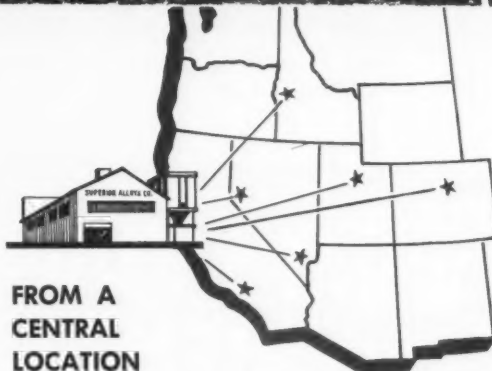


PASADENA HYDRAULICS INC.

1433 Lidcombe, El Monte, California

... for more details, circle No. 52 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

Stainless Castings



FROM A
CENTRAL
LOCATION

... FOB YOUR PLANT

Whether you are in Boise, Salt Lake City, Los Angeles or Las Vegas—anywhere in the West—there is a Superior sales engineer near you to serve you. He is backed up by the West's most modern and centrally located stainless steel foundry. Its low overhead can put your castings in your plant FOB.

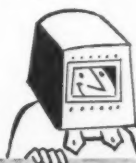
Count on Superior to meet your most exacting requirements in corrosion and heat resistant castings—production or short runs—to 700 pounds, to highest X-ray standards.

NEXT TIME—Call your nearest Superior sales engineer.

SUPERIOR ALLOYS CO.

SOUTH SAN FRANCISCO — 150 Harbor Way — Plaza 5-7115
NORTH HOLLYWOOD — P. O. Box 478 — Triangle 7-4904
SALT LAKE CITY — 117 W. 2nd South — DA 2-5553

... for more details, circle No. 54 on Reader Service Postcard



ON THE DOUBLE...

COMPLETE
WELDING
and
CUTTING
EQUIPMENT
and SUPPLIES

Distributors of
HOBBART
WELDING PRODUCTS

LIQUID OXYGEN
LIQUID NITROGEN
ACETYLENE
HYDROGEN
NITROGEN
LIQUID ARGON

faster service
anywhere in the
Pacific Northwest

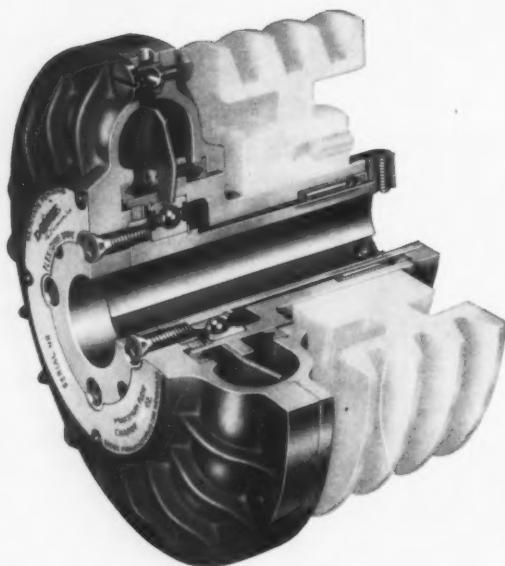
You get dependable, double
quick service from I.A.P.
First, we assume you're in a
hurry. Secondly, you'll find
an Indair plant near you.

**INDUSTRIAL AIR
PRODUCTS CO.**

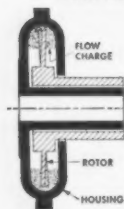
PORTLAND
SEATTLE
KENNEWICK
MEDFORD
SPOKANE
YAKIMA
BOISE

... for more details, circle No. 53 on Reader Service Postcard

WHAT'S YOUR PROBLEM?...



HOW FLEXIDYNE WORKS



The "dry fluid" in Flexidyne is tiny heat-treated steel shot. A measured amount, called the "flow charge," is contained in the housing, which is keyed to the motor shaft. Inside the housing is a rotor, free to revolve relative to the housing, but connected to the load.

When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, packing it between the housing and the rotor, which transmits power to the load. Initial slippage is momentary. Housing and rotor become locked together and achieve full load speed without slip and at 100% efficiency.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look under "Dodge Transmissioneer" in the white pages of your telephone directory, or in the yellow pages under "Power Transmission Machinery."

- ☒ Overheated motors?
- ☒ Excessive belt maintenance?
- ☒ Breakage of materials being processed—like thread, wire, paper?
- ☒ Expense of oversize or high torque motors?
- ☒ High demand rate?
- ☒ Expense of reduced voltage starters?
- ☒ Clutch trouble?
- ☒ Breakage of transmission parts due to instantaneous shock loads?
- ☒ Damage and recurring down-time from overloads?

FLEXIDYNE

THE DRY FLUID DRIVE

It is no longer necessary to accept the destructiveness—the costliness—of conventional starting in the mechanical transmission of power. Flexidyne changes that!

Flexidyne is the new way to start loads *smoothly*—to protect against shock and overload—to save power—all *without any sacrifice of efficiency at full load!*

This revolutionary development is ushering in "the day of the soft start"—which can mean thousands of dollars to you in equipment savings and in better, more economical operation.

Flexidyne is available, off the shelf, in Drives and Couplings. Capacities range from fractional to 1,000 hp. Ask your local Dodge Distributor or write us for technical bulletin.

DODGE MANUFACTURING CORPORATION, 6600 Union St., Mishawaka, Ind.

DODGE

→ of Mishawaka, Ind.



... for more details, circle No. 55 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960



WESTERN INDUSTRY NEWS

THE INDUSTRIAL WEST . . . ON IT'S WAY

PLANTS • PRODUCTION • DISTRIBUTION • PERSONNEL

Republic Supply Man Salesman of the Year



Howard Williams, right, of the Republic Supply Co. of Calif., receives "Salesman of the Year" award as one of Los Angeles area top industrial salesmen from Ralph Yambert of the Los Angeles Sales Executive Club. Award was sponsored by the Metals Group of the Los Angeles Purchasing Agent's Association. Williams, who won a "Sammy" once before in 1953, has been with Republic Supply for 14 years. Republic is a Western distributor of industrial and water works supplies, metals, tubing and oil field equipment.

Southwest Forest Firm Plans \$40,000,000 Mill

TUCSON, ARIZ.—Southwest Forest Industries, Inc., successor to the Southwest Lumber Mills, will build a \$40,000,000 mill for the manufacture of newsprint and kraft paper near Snowflake, near the largest single stand of Ponderosa Pine in the U. S.

Jan. 1, 1962, has been set as target date for beginning the kraft paper operation and March 1, 1962, for beginning the newsprint manufacture. Present plans call for some 800 persons in project operations.

Sawmill waste from the big McNary and Flagstaff lumber operations of the firm will provide more than 40% of the raw materials for the new mill. The balance of the annual requirements, estimated at 236,000 cords, will be met by harvesting of pulpwood under a 30-year contract with the Forest Service.

Colton Chemical Building West Coast Resin Plant

LOS ANGELES—Colton Chemical Co., a division of Air Reduction Co., Inc., has announced plans to expand its manufacturing facilities on the West Coast. A new resin plant will be built by Colton Chemical at City of Industry, Los Angeles County, on a five-acre tract purchased recently.

Supporting facilities will include a sales office, technical service laboratory, and a warehouse which will replace a bulk terminal now operated at City Terrace in Los Angeles. The plant will be devoted to resin polymerization and will produce Colton's Flexbond and Vinac resins.

Bethlehem Steel Buys 575 Adjacent Acres

SAN FRANCISCO—The purchase of 575 acres of land immediately adjacent to Bethlehem Steel Co.'s plant at South San Francisco was confirmed recently by H. H. Fuller, vice president of the company.

The new property has been acquired to provide for possible future expansion of the South San Francisco plant and is made up of some developed areas, undeveloped highlands, and adjacent tidelands, which, with the present holdings, will give the company approximately 700 acres of land in South San Francisco.

The various properties involved were purchased from the Utah Construction and Mining Co.

Packaging Corp. of Am. To Locate at Berkeley

BERKELEY, CALIF.—Packaging Corp. of America has announced plans to take over the 13-acre plant at Ashby and San Pablo, here, formerly occupied by the H. J. Heinz Co.

The firm will manufacture molded pulp products. The plant here will be the only Western operation of the firm and is expected to employ in excess of 200 persons.

Calaveras Cement's New Bulk Transfer Facility



Discussing growth of Northwest at open house of Calaveras Cement Co.'s new plant in Springfield, Ore., left to right, Martin Edberg, chairman of Springfield Chamber of Commerce Industrial Committee, and William Wallace Mein, Jr., president of Calaveras, a division of Flintkote Co.

SPRINGFIELD, ORE.—Charles Evans, Jr., formerly of San Andreas, Calif., has been appointed plant manager of Calaveras' plant here which will receive bulk cement by rail from the company's manufacturing plant at San Andreas and serve as a distributing point for truck delivery in the 13 southern counties of Oregon.

Modern throughout, it is equipped with a 70-ft. Fairbanks-Morse scale, and can load one cement truck and trailer every seven minutes. Its two storage silos have a total capacity of 2350 barrels of bulk cement. An adjoining warehouse holds four railroad cars of sack cement.

Telecomputing Corp. Buys Denver Firm

DENVER, COLO.—The Frank R. Cook Co., 3850 Olive St., aviation-electronics firm, has become a wholly owned subsidiary of Telecomputing Corp. of Los Angeles.

Thomas C. Cleary, for 10 years with another Telecomputing subsidiary, Whittaker Gyro, Van Nuys, Calif., has been named president of the firm which will be known as Cook Batteries.

GEARS FOR INDUSTRY
THE **Lufkin LINE**
OIL FIELD PUMPING UNITS

WHAT IS A.G.M.A.?

When you buy a gear box (common terminology for gear reducer, speed increaser, etc.) it is a good idea to find out in advance whether the manufacturer builds it in accordance with the standards of the American Gear Manufacturers' Association. Its nameplate should bear the AGMA symbol.



V. J. Fawcett

Lufkin is a member of the association and participates in committee work where the standards are shaped, worked and re-worked before voting by the membership takes place.

Although the buyer of a gear stamped "AGMA" is assured of receiving a product that is guaranteed to meet certain standards, he is by no means relieved of the need to search for value. An AGMA gear should never fall below certain minimum standards of design, construction, ratings, etc., but considerable latitude exists among manufacturers of this association, and it will pay a user to thoroughly check and compare things like bearing life, gear brinell, face widths and diameters, shaft materials, case construction.

Lufkin welcomes such evaluations and gladly provides data to assist in making comparisons.

VIC FAWCETT
PACIFIC COAST MANAGER
GEAR DIVISION

Lufkin FOUNDRY
& MACHINE COMPANY

... for more details, circle No. 56

Hughes-Fullerton New Computer Laboratory



FULLERTON, CALIF. — New computer laboratory at Hughes Aircraft Co.'s ground systems group, here, is located in the facility shown in right foreground. The main administration and engineering building is in the center.

An outgrowth of several independent project groups, the lab has been divided into sections working on land based and seaborne computer systems,

general purpose computer systems and computer advanced development.

Research programs currently under way include missile and satellite tracking in outer space, micro-miniaturization and integrated element techniques.

Hughes-Fullerton currently employs more than 6,000, has a weekly payroll of more than \$650,000, and a total floor space of nearly 1,000,000 sq. ft.

Pacific Extrusions, Inc. Installs 1,000-ton Press

WATSONVILLE, CALIF.—Pacific Extrusions, Inc., has increased productive capacity at its plant here with the installation of a 1,000-ton extrusion press.

Frank Gregg, president, said the new press will permit the firm to extrude 600,000 lbs. of aluminum a month. The equipment can produce shapes in cross sections of up to 4½ inches.

The company, an affiliate of Aluminum Extrusions, Inc., Charlotte, Mich., established the first extrusion facility in Northern California last fall when it opened a new 20,000-sq. ft. plant here.

Consolidated Freightways Orders Highway Equipment

MENLO PARK, CALIF.—Orders for \$4,400,000 in new highway equipment as part of a planned \$21,000,000 equipment modernization program for 1960 has been announced by President J. L. S. Snead, Jr.

The new purchases include 778 highway trailers, 77 diesel-powered refrigeration units, 17 "converter" dollies used to assemble double-trailer combinations and five heavy-duty highway tractors.

Columbia-Geneva Div. Buys Pittsburg Land

SAN FRANCISCO—Purchase of approximately 129 acres of vacant land adjoining the Pittsburg Works property was announced recently by J. D. McCall, president of U. S. Steel Corp.'s Columbia-Geneva Steel Div.

McCall said the land was purchased in connection with the Division's long-range plans. The property, consisting of two parcels, is a triangular strip fronting the Pittsburg-Antioch Highway on its north boundary and running south to the Southern Pacific right-of-way. It extends from about 1000 feet west of the Contra Costa Canal wasteway on the west to Somersville Road on the east.

George M. Prescott Co. New Allis-Chalmers Rep

LOS ANGELES — C. G. Meyer, branch sales manager of the Material Handling Division of Allis-Chalmers Manufacturing Co. here, has announced the appointment of the George M. Prescott Co. as distributor in Los Angeles and Orange counties of the Allis-Chalmers line of fork lift trucks.

George M. Prescott, president of the distributor organization, said his company will maintain a complete parts depot and repair service.

Three Ground Breakings At Industrial Park

NEWHALL-SAUGUS, CALIF. — At recent ceremonies on the 600-acre Golden Triangle Industrial Park in the Newhall-Saugus district, Los Angeles County, ground was broken for three new manufacturing installations.

Berman Swartz received a plaque from the local Chamber of Commerce at the triple groundbreaking for his vision and persistence in developing a raw 600-acre Newhall-Saugus farm into a huge \$5,000,000 industrial complex.

M. M. Brockway, president of Crown Coach Corp., said his firm will erect a \$1,000,000 facility on a 23-acre site. The plant will replace their downtown Los Angeles plant which manufactures buses and fire engines.

Vice president of Cordo Chemical Corp., of Alabama, Grant Brown, broke ground on a 7-acre site. This plant will manufacture heat resistant plastic materials.

President Rex Badley of Western Equipment Manufacturing Co. said his firm will manufacture earth scrapers and other farm equipment at a plant to be built on its 9-acre site.

McGuire Chemical Builds Vancouver Mixer Plant

VANCOUVER, WASH. — Construction of a \$350,000 chemical storage and mixing terminal is under way here by McGuire Chemical Co. of Oakland, Calif.

McGuire has leased five acres of port property and has begun construction of two large storage tanks. The firm will import chemicals by water from East and Gulf Coast manufacturers and will blend and package them for distribution to Northwest markets.

Feenaughty Builds New Portland Plant

PORTLAND—The Feenaughty Machinery Co. here has begun construction of a \$190,000 plant to provide car-loading facilities, storage and display space at N. E. Columbia Blvd. and 47th Ave.

The company's present facilities have been acquired by the State Highway Dept. in its right-of-way acquisition for a new freeway.

Choice of the wise buyer
who compares...

CM HOISTS

CM METEOR ELECTRIC WIRE ROPE HOIST ½ to 5 ton capacities — Compact, enclosed design. Low headroom. Continuous duty motor with thermal overload protection for heavy duty service. Precision bearings and helical gears for long life. Only 110 volts at push button control. Hook suspension; plain, geared or motor driven trolley.



CM LODESTAR ELECTRIC CHAIN HOIST—¼ to 2 ton capacities—First truly heavy duty version of small electric hoist. ¼ ton model weighs only 51 lbs. Heavy duty self-adjusting brake, plus exclusive regenerative electrical braking. Upper-lower safety limit switches. CM-Alloy load chain. Single and three phase.



CM CYCLONE Hand Chain Hoist—¼ to 10 ton capacities —Easy to carry. One ton model weighs only 36 pounds. Made of tough aluminum alloy. CM-Alloy load chain. High efficiency. Lifetime lubrication.



CM PULLER—"The One Man Gang"—¾ to 6 ton capacities —Lifts or pulls at any angle. Lever handle operation. Automatic load brake holds at any point. ¾ ton model weighs only 13 pounds and fits in a tool box. CM-Alloy load chain.

HAND OR ELECTRIC CHAIN OR WIRE ROPE

CM makes them all! So you can choose a hoist that's perfectly suited to your specific needs in a compact, rugged and safe CM design.

CM TROLLEYS AND CRANES



● **FOR OVER 75 YEARS**, Chisholm-Moore has offered hoist buyers the newest and most efficient designs, the most rugged construction, and the greatest number of valuable operating and safety features. CM hoists operate with a very minimum of maintenance. They give years of satisfying service.

Request catalog and name of local stocking distributor.



CHISHOLM-MOORE HOIST DIVISION COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK
REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

... for more details, circle No. 57 on Reader Service Postcard

Bulldog Pallet Opens Operation at Redding

NEWARK, CALIF.—The Bulldog Pallet Co. has opened a plant in Redding, Calif., for precutting the lumber used in the firm's pallet manufacturing operation here and its pallet repair plant in San Francisco.

In announcing the new facility, President *Richard M. Duff* added, "Making top-quality pallets requires careful trimming of the lumber to eliminate any possibility of weak spots, and for us this results in a substantial amount of trimmed waste. By pre-cutting near our main source of lumber we save shipping charges to Newark and San Francisco on this potential waste.

"Moreover, in cooperation with smog control authorities we had eliminated burning this waste at our Newark plant and until now have been paying a substantial amount to have it carted away for dumping. With this new plant supplying our deck boards and runners ready for assembly, the savings on shipping and cartage of the waste will be very substantial," Duff said.

Western Gear Division Broadens Product Line



Finalizing plans for an international industrial alliance are, left to right, John Griffith, a director of Teddington Aircraft Controls, Ltd., Middlesex, England; Rex Saunders, Teddington engineer at Washington, D. C., and Thomas F. Bannan, president of Western Gear Corp.

LOS ANGELES—The Precision Products Div. of Western Gear Corp. is broadening its product line to include controls, valves, switches and regulators, according to Herbert J. Dobb, manager.

Dobb said the Precision Products Div. is collaborating with the Teddington Aircraft Controls, Ltd., of Great Britain, to provide considerably expanded design and manufac-

turing facilities in the controls field for customers in the U. S.

Western Gear, he added, will also provide factory service for Teddington equipment presently in use in the aviation industry here. The equipment which the association will make available includes electro-magnetic valves, hot-air and gas valves, time and pressure switches, pressure regulators and related control equipment.

Airsupply-Aero Opens Facility at Phoenix

BEVERLY HILLS, CALIF.—Establishment of office facilities in Phoenix for Airsupply-Aero Engineering Co. has been announced by *Ben Shirey*, Western district manager. The new office, at 2950 W. Thomas Rd., will serve the entire State of Arizona.

Peter Hansen was named Phoenix resident field engineer. Airsupply is a division of Garrett Corp., providing sales and engineering service representation on a national basis for firms in widespread phases of the defense and specialized commercial industries.

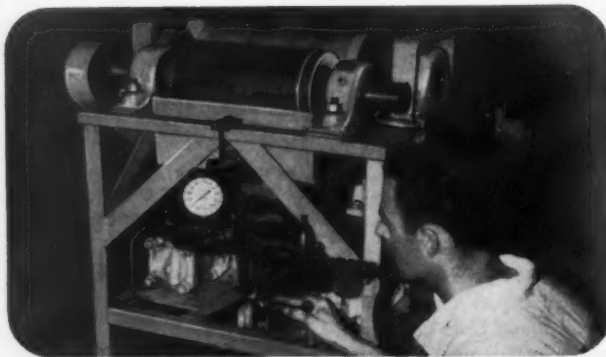


We TORTURE Rubber Rolls at the other * Goodyear

When a rubber roll comes into our special division for recovering, we give it rough treatment. Simulating actual conditions that exist in your plant, we are able to formulate a rubber compound to best cope with your specific needs. Industries represented include: automotive, aviation, petroleum, food processing, graphic arts and many more. We also manufacture a complete line of industrial rubber products on a custom basis. Please call on us.

* Matter of fact . . . the original. Established 1872, we have no connection with the firm that manufactures automobile tires.

GOODYEAR RUBBER COMPANY



Special "torture" machine "attacks" rubber rolls with pressure. Also checks heat build-up, determines "set"—checks distortion, resistance to abrasion and adhesion of rubber to shaft.

WRITE TODAY FOR BROCHURE

Goodyear Rubber Company
2400 Third St., San Francisco 7, California

GENTLEMEN:

PLEASE SEND ME YOUR BROCHURE, RUBBER PRODUCTS FOR INDUSTRY.

NAME _____

FIRM NAME _____

STREET _____

CITY _____

STATE _____



2400 THIRD STREET
SAN FRANCISCO 7, CALIFORNIA

. . . for more details, circle No. 58 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

Fabricated Steel To Make Handling Systems

NORTH HOLLYWOOD, CALIF.—Herbert Ziegler, president of Fabricated Steel Service, Inc., here, announced recently that the company will hereafter specialize in the building of bridge and monorail crane systems and the manufacture of custom mechanical equipment. The company is closing its miscellaneous iron and structural steel fabricating department which has been a small part of its production.

Edwin M. Waite continues as vice president and general manager of the local facility that has made a wide variety of products including jet engine and other specialized trailers, guided missile dollies, truck mounted cranes for scale inspectors, and numerous items of coil and material handling equipment.

GE Opens Gear Motor Center for the West

SAN FRANCISCO—A new Gear Motor Center to serve 11 Western states has been opened here by General Electric's Gear Motor & Transmission Components Dept.

With addition of the new facility, the department will offer, through local company sales and service offices in the West, specialized on-the-spot application assistance on and complete modification and repair as well as quick shipment of a broad line of mechanical power transmission products.

Glenn D. Tobias of San Rafael, Calif., has been appointed Western regional sales manager of the new Center located at 1098 Harrison St. H. L. Olmstead, Walnut Creek, Calif., has been named manufacturing supervisor.

Machinery Shipped From Seattle to Anchorage

SEATTLE—Machinery for Alaska's first clay brick and tile factory has been shipped from here.

The Atlas Brick and Tile Co. hopes to start production shortly at the quarter million dollar plant. The company will turn out 80,000 to 100,000 bricks a day, as well as building sewer and patio tile.

The machinery was shipped via the Alaska Steamship Co. to Seward and then reshipped via the Alaska Railroad to Anchorage.

Parker Seal Co. Appoints Alta Engineering Rep

CULVER CITY, CALIF.—The appointment of Alta Engineering Co. of Salt Lake City as a distributor for Parker Seal Co. has been announced by T. J. McCuiston, vice-president of sales. Alta will cover Western Colorado, Southern Wyoming and Idaho, Eastern Nevada, and Utah. They will handle the Parker O-Ring line.

Alta will draw on the services of Robert Soloff, Parker sales engineer in the territory.

New Plastics Firm Situates in Santa Ana

SANTA ANA, CALIF.—Construction is underway on the new plant here for Dynatech Plastics, Inc.

Located at 1225 E. Wakeham St., the modern 12,000 sq. ft. tilt-up concrete building is scheduled for June completion. Employment is expected to reach 50 by fall, said Ray C. Wilcox, executive vice president.

Dynatech designs and produces custom injection mouldings for commercial and industrial applications.

GREEN-PENNY

your



... For STEEL SHELVEING, STORAGE RACKS, SHOP & MATERIAL—HANDLING EQUIPMENT

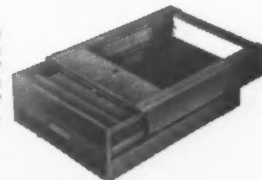
HALLOWELL STANDARD WORK BENCHES and Accessories

Standardized construction with standard accessories permit you to custom build work benches to fit your requirements. Steel parts are phosphate coated, then finished in baked-on enamel, in standard SPS Green, or if desired in SPS Gray. Units may be used individually, back to back or in a continuous line. A variety of interchangeable accessories augment these cost reducing benches.

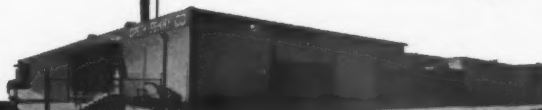


Four different bench tops are available — Heavy Gauge Steel, Presdwood-Covered Steel, Hard Laminated Wood or Resinwood Facing bonded to Wood Core.

Bench Drawers (optional) are of all steel construction, with positive, dependable drawer stops. Also available with sliding trays and cylinder drawer locks.



BENCHES
BINS
BOXES
CABINETS
CASTERS
CHAIRS
DESKS
DRAWER UNITS
DRAWERS
FILES
FLOOR MATS
FOREMAN'S DESKS
FORK TRUCKS
FUME HOODS
LABORATORY FURNITURE
LADDERS
LOCKERS
PARTITIONS
PARTS CASES
RACKS
ROTARY BINS
SHELVEING
SHOP BOXES
SLINGS
STOCK CARTS
STOOLS
TABLES
TOOL STANDS
TOOL STORAGE UNITS
TRUCKS
WHEELS
WIRE MESH PARTITION



2 Locations

GREEN-PENNY CO.

LOS ANGELES 4180 E. Noakes St. Angelus 8-3321
OAKLAND 2211 San Pablo Ave. GLencort 1-8555

For a complete listing of products ask for Cat. No. 559

Wagner Tool & Die Announces Expansion

TUCSON, ARIZ. — Wagner Tool & Die Co. will construct a new 60,000-sq. ft. building on a 2½-acre site which will enable the firm to double its current production and increase the work force to 60, according to *Otto Wagner*, president.

"We will increase the size of our toolroom, grinding facilities and our tool engineering and design departments, also adding to our electronics department," he said.

Cheney Negotiating With Georgia Pacific Corp.

PORTLAND — Negotiations have begun recently between Georgia Pacific Corp., here, and Cheney Lumber Co., with headquarters in Tacoma, Wash., for the sale of Cheney to the Georgia Pacific Corp.

Ben Cheney, president of the Cheney Co., which owns seven plants in Washington, Oregon and California, and which also holds substantial timber in the three states, said there have been negotiations.

Collins Radio to Build In Southern California

SANTA ANA, CALIF. — The Collins Radio Co. of Cedar Rapids, Iowa, has broken ground on a major research and development plant to be built on 177 acres of Irvine Ranch property in Orange County.

To cost in excess of \$2,000,000, the plant will employ 800 technical and administrative personnel by Feb. 1, 1961, and in the thousands within a period of five years.

Research, development and manufacture of data transmission equipment will be the principal operation of the Collins' Western Division, according to *M. L. Doelz*, vice president of the company.

Dow's Dowell Div. Opens California Headquarters

BAKERSFIELD, CALIF. — The Dowell Div. of the Dow Chemical Co. has opened California headquarters here at 7440 Downing Rd., it was announced recently.

The company specializes in the use of chemicals to stimulate production from oil, gas and water wells. All of the well stimulation techniques that are available to the petroleum industry in other parts of the U.S. and Canada will be available to California's operators, according to *A. C. Polk*, executive vice president and general manager.

Dowell engineers and equipment operators have been transferred from the company's Rocky Mountain headquarters at Farmington, N. M.

Manager of the California operations is *D. J. Mack*. In charge of the Bakersfield operations is *J. W. Clifford Jr.* and *J. B. Ritchie* is the service sales engineer.

Lerco Acquires Assets of Automation Development

BURBANK, CALIF. — Lerco Electronics Inc., here, has acquired the assets of Automation Development Co. of Los Angeles, it was announced recently by *Hugh P. Moore*, Lerco chairman.

Automation Development will operate as a wholly owned subsidiary of Lerco, Moore said. *Walter E. Peterson*, president of another Lerco subsidiary, Micro Gee Products Inc., will serve as president of Automation Development as well.



NEW MILLER CONSTANT POTENTIAL D.C. WELDER CP-3-VS

X-ray perfect MIG welds on aluminum, magnesium, stainless and carbon steel sheets down to .030" are the routine result with the New Miller Constant Potential, CP-3-VS. Continuous slope and voltage adjustment even during the course of the weld means that the operator is able to "tune in" the desired settings. There's no burn-through; there's no spatter. Actually, a new performance high in low voltage welding is established with the introduction of this welder with its broad range of from 300 amps at 30v to 25 amps at 10v. * Complete specifications, as well as recommendations for your particular application problems, will be sent promptly upon request.

miller ELECTRIC MANUFACTURING CO., INC., APPLETON, WISCONSIN
Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal

... for more details, circle No. 60 on Reader Service Postcard

Denver Fire Clay Rep For Babcock & Wilcox

DENVER—The Babcock & Wilcox Co., New York, has signed a dealer sales agreement with the Denver Fire Clay Co., here, it was reported recently by R. A. Barr, vice president in charge of B&W's Refractories division, and R. C. Shepard, president of Denver Fire Clay.

Under terms of the agreement, Denver Fire Clay will market B&W's refractories products in a six-state area comprising Colorado, Wyoming, New Mexico, Utah, Eastern Nevada, Idaho and Western Montana.

Denver Fire Clay maintains sales offices here and in Salt Lake City, in addition to two plants and clay mines in the Denver area.

Allied Chemical Corp. To Acquire Specialty Resins

LYNWOOD, CALIF.—Plans for Allied Chemical Corp., New York, to acquire the assets and business of Specialty Resins Co., here, were announced recently by Frank M. Norton, executive vice president of Allied Chemical's Plastics and Coal Chemicals Div., and E. A. Lasher, president of Specialty Resins.

In making the announcement, Norton stated that acquisition of Specialty would provide the Division with its initial production facility in the growing West Coast market for resins and plasticizers.

Included in Allied Chemical's overall expansion plans for the West Coast is a plant for production of phthalic anhydride in the Los Angeles area.

Harbor Plywood Corp. Sold to Aberdeen Firm

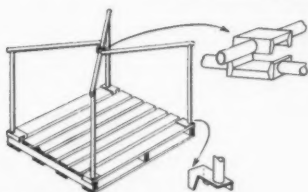
ABERDEEN, WASH.—Aberdeen Plywood Corp., here, recently purchased all of the facilities and inventory of Harbor Plywood Corp. of Hoquiam, Wash., for \$9,500,000.

Monford A. Orloff, president and general manager of Aberdeen, said the plant will be shut down for three or four weeks while extensive repairs are undertaken after which the mill will be reopened.

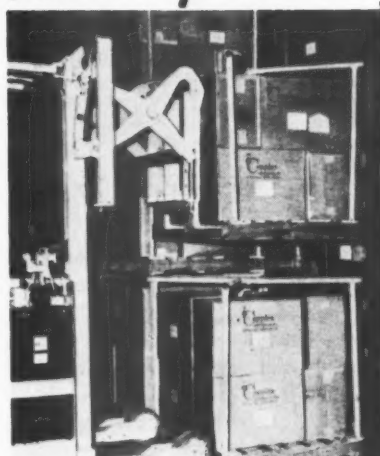
Orloff said the Harbor operations will continue to operate as Harbor Plywood but will become under the new ownership a division of Aberdeen.

PALTIER Tiering Frames get more into less floor space!

Convert your standard pallets into portable tiering pallets by using Paltier frames and double or triple your present warehouse capacity! Paltier frames prevent damage to products on bottom pallets, support up to 12,000 lbs., stack two or more high. Frames knock down flat when not in use, store in minimum space.



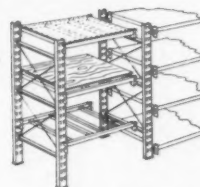
Wedge type joint locks securely. Frame straddles pallet stringer, holds tight through "hairpin" joint.



PALTIER ADJUSTABLE PALLET RACKS easiest to set up— knock down

For storing pallets one deep off the aisle, Paltier racks provide shelf adjustment on 4" centers up, down or in and out by hand or fork truck. Sets up in seconds with no special tools, nuts, bolts, screws or wedges required. Designed for special load requirements. For use indoors and outdoors.

Only two parts, upright and shelf.



Paltier frames and racks are comparable in cost to the lowest price available, yet have features lacking in similar equipment costing more. Send today for information on how Paltier products can help streamline your warehousing operations.

The World's
Largest
Selection of
Casters &
Wheels

1458 Different

Colson Equipment & Supply Co.

LOS ANGELES 13 1317 Willow Street • MAdison 2-2422
OAKLAND 7 350 Tenth Street • TEmplebar 2-3556
SAN FRANCISCO 5 544 Second Street • GArfield 1-0280

Kinds, Types and Sizes

... for more details, circle No. 61 on Reader Service Postcard

Statistical Methods in Industry Program at UCLA

LOS ANGELES — The 1960 Statistical Methods in Industry program including courses in quality control by statistical methods and in industrial reliability, will be held August 1 to 19 at the University of California, here.

Also offered will be 15-day courses in the design and analysis of industry experiments and in basic measurements and standards, including non-destructive testing.

Diamond W. Supply To Handle GE's Textolite

LOS ANGELES — Diamond W. Supply Co., 6416 East Flotilla St., here, has been named authorized wholesale distributor in the Los Angeles area for Textolite, the General Electric decorative high-pressure laminate. The announcement was made by *Ralph M. Singer, Jr.*, Diamond W. vice president and general manager.

Singer said his company will handle the complete Textolite line of over 70 patterns and colors in all standard sheet sizes.

Republic Supply to Build at Sacramento

SACRAMENTO, CALIF. — Construction of a new quarter-million dollar branch facility in Sacramento was announced by *John J. Pike*, president of The Republic Supply Co. of Calif., West Coast distributor of industrial and water works supplies, pipe, metals and oil field equipment.

Pike said that the new branch is being built to meet the heavy demand for water works and pipeline supplies brought about by increasing building activity in the Sacramento area. Keasby & Mattison asbestos cement pipe, valves, fittings and hydrants will be stocked in a 6,000 sq. ft. warehouse located on a recently purchased 2½-acre site.

The one-story facility will be located at 5400 Eighty-third St. Lawrence Construction Co., local contractor, is scheduled to begin construction shortly.

According to Pike, the new branch will primarily service private and municipal water companies as well as pipeline contractors.

Coe Manufacturing To Build New Plant

PORTLAND — Coe Manufacturing Co., which maintains Western division headquarters and sales and service offices here, has started construction on new sales, warehouse and plant facilities in the Tigard industrial area, nine miles from downtown Portland.

Western Division Manager *Fred W. Fields* said that up to \$300,000 will be spent on the project. Coe's home office is in Painesville, Ohio, and until the present project was undertaken, all manufacturing of machinery or the veneer, plywood, plasterboard and fiberboard industries had been done in Ohio.

New Denver Quarters For American Brass

DENVER — American Brass Co. has moved into a \$100,000 building at 2393 South Delaware St., here.

Besides warehouse and offices the firm now has some 15,000 sq. ft. for fabrication of products in the building, according to *R. G. Burg*, district sales manager.

The firm is a wholly-owned subsidiary of the Anaconda Co., Butte, Mont.

Motorola closed circuit TV gives you



VISUAL CONTROL OF CRITICAL AREAS

Now—your key men *can* be at several places at once—without leaving their offices. They are right there on the spot, in control, in those critical areas throughout the plant—where work progress, materials flow, traffic conditions all call for their personal attention. With Motorola closed circuit TV, touch a button and the whole scene comes to life in the receiver on the desk. Think of the time and effort saved. Think of the increased efficiency!

Let Motorola, pioneer in industrial communications, help you analyze your problem, whatever it is: supervision, inspection, plant protection, any of the dozen situations calling for your personal attention at the same time. Let Motorola custom-tailor a closed circuit TV system to your need. And you'll be amazed at how quickly the savings pay for the system.

... After TV spots the condition: the Motorola Radio Pager gives you FAST CONTACT with the personnel that can correct the problem

"Get your repair crew over to line 6—fast."



MOTOROLA Closed Circuit TV

Motorola Communications & Electronics, Inc., 1616 Rollins Road, Burlingame, Calif. • A Subsidiary of Motorola Inc.

... for more details, circle No. 62 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

Bay State Abrasives Buys Torrance Firm

TORRANCE, CALIF.—Bay State Abrasive Products Co., Westboro, Mass., has purchased the Felker Mfg. Co., here, it has been announced by Arthur E. Gilman, president of the Massachusetts grinding wheel firm.

Felker is a well-known manufacturer of diamond abrasive cut-off blades used in the construction, stone, building, ceramic, lapidary and electronics industries. They also manufacture machines, accessories, diamond core drills and diamond compound used in these industries for cut-off purposes, lap-
ping and core drilling.

The acquired company will be operated as a wholly-owned subsidiary of Bay State under the direction of Vice President Elden L. Aufer. Lester F. Kuzmick will be retained as manufacturing manager and Fred K. Ryan as sales manager. Felker has 120 employees and 500 national distributors.

Nevada Gets \$2 Million Metal Processing Plant

CARSON CITY, NEV.—Gov. Grant Sawyer announced recently that Electro-Nuclear Metals of Roseville, Calif., will build a \$2,000,000 metal processing plant near Caliente, in Lincoln County, with production to start shortly after mid-August.

The plant will process zirconium and hafnium ores mined at Escalante, Utah.

John Piches, president of Electro-Nuclear, said the new facility will employ 50 workers to start and take on an additional 100 within six months.

The firm reportedly has a new process for extracting pure reactor-grade zirconium and hafnium already used successfully in laboratory tests.

P. I. Steel To Make Jet Passenger Ramps

OGDEN, UTAH—An operational change in the P. I. Steel Corp. plant here has been announced by R. F. Campbell, vice president and general manager.

Effective May 9, the plant will be converted into a manufacturing operation producing the "Jetway" line of telescoping passenger ramps which allow airline passengers direct access to and from terminal and aircraft.

The plant, completed in 1957, has been operating as a steel fabricating facility serving the Western states.

CAM-ALLOY STEEL

HIGH TEST STEEL

WROUGHT IRON

Come To CAMPBELL For The Complete Line of SLING CHAINS

every type — every size
every grade — every attachment

Whatever your particular application, Campbell will deliver exactly the right assembly! All Campbell Sling Chains are available in 3 grades—Cam-Alloy Steel, High Test Steel and Wrought Iron.

**GUARANTEED
FOR A FULL YEAR!**



Send today for your free copy of
Campbell's new Sling Chain Handbook

It contains complete details on all Campbell Sling Chain equipment—
together with lots of valuable information on care and use. And you'll
find step-by-step instructions for ordering each type of sling chain
and attachment—illustrations—specifications and working load
limits for all grades.

CAMPBELL CHAIN Company



**CAMPBELL
CHAIN**

FACTORIES: York, Pa.; West Burlington, Iowa; Union City, Calif.
WAREHOUSES: E. Cambridge, Mass.; Atlanta, Ga.; Dallas, Texas;
Chicago, Ill.; Portland, Ore.; Seattle, Wash.; Los Angeles, Calif.

Makers of Famous CAMPBELL Jiffy Lug-Reinforced TIRE CHAINS

... for more details, circle No. 63 on Reader Service Postcard

CF&I To Install Oxygen Converters

PUEBLO, COLO. — A. F. Franz, president of Colorado Fuel & Iron Corp., and other officials broke ground recently for the installation of two basic oxygen converters which will add 50,000 ingot tons of steel per month to the mill's capacity.

The \$8,000,000-project will raise total output one third. The present 17 open hearth furnaces have annual capacity of 1,800,000 ingot tons.

Target date for opening production of steel in the converters is March 1, 1961.

Portland to Alaska New Barge Service

PORTLAND—Alaska Northern Express, Inc. recently inaugurated direct barge service between Portland and Anchorage, Alaska. The general cargo firm initially has scheduled one sailing a month with additional sailings to be added as cargo increases warrant.

The company delivers general freight from Anchorage to Seward, Valdez, Palmer, Fairbanks and intermediate military and highway points.

Darnall Distributors For Seiki Machine Tools

LOS ANGELES — The Darnall Machinery Co., at 2001 South Santa Fe, here, has been appointed distributors of the full line of Seiki Machine Tools for Southern California.

Products of Hitachi Machinery Co., Ltd., include high speed heavy-duty turret lathes and vertical and horizontal milling machines.

Denver Chosen for Pre-Cast Stone Plant

SALT LAKE CITY—Otto Buehner & Co., local manufacturers of concrete products, will open a large Denver plant for the manufacture of pre-cast stone products and J. Nisbet Marye, Denver construction engineer, has been appointed Denver manager.

The firm, a pioneer in the development of pre-cast stone products, operates throughout most of the nation and has branch plants in Los Angeles and Phoenix.

Marye for the past seven years has been a vice president of the Mack Pre-cast Products Co. of Adams City, Colo.

Ducommun Appointed Rodney Metals Rep

LOS ANGELES — Ducommun Metals & Supply Co. has been named exclusive distributor for Rodney Metals, Inc. in California, Washington, Oregon, Arizona, New Mexico, Idaho and Utah.

Rodney Metals, a New Bedford, Mass. company, makes thin alloy metal strip and foil. Ducommun has metals service centers here and in Berkeley and San Diego, Calif., Phoenix and Seattle.

New Mex. Public Service Plans 3-Year Expansion

ALBUQUERQUE, N. M.—Public Service Co. of New Mexico will spend some \$36,000,000 during the next three years for expansion needed to keep up with growth of this area, according to D. W. Reeves, president, at the annual stockholders' meeting recently.

The power company expansion needs were attributed to this area's industrial community.

Reeves reported that gross revenues for 1959 totaled \$17,345,923, a 19.5% increase over 1958, and plant investment \$11,923,240 or 18.3%.



Husky--and always ready for action!

Pacific leads the way with a new premium wire rope that gives longer life, cutting costs to a minimum.

The new Husky Chokers, Husky Arch Lines, Husky Special Harvesting Ropes, Husky Can Conveyor Ropes and Husky Elevator Ropes are all especially engineered for maximum strength, flexibility and abrasion resistance. As their name implies, they are "Husky" and will withstand the most rugged service.

Write for complete details and prices.



PACIFIC WIRE ROPE COMPANY 1840 EAST 15th STREET, LOS ANGELES 21, CALIFORNIA

... for more details, circle No. 64 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960

New Clough Factory Building Underway

SEATTLE—Construction began June 1 on a new 50,000 sq. ft. factory and office structure for Clough Equipment Co., here, producers of highway-type tank trucks and trailers. Located on a 4½-acre tract at Fifth Ave. South and Michigan St., the new facility is scheduled for completion about Sept. 1.

The new building will feature tilt-up concrete sidewalls, steel columns, beams, purlins and roof deck. Total office and factory space will be approximately 50,000 sq. ft., with three-bay, bridge cranes serving the full length of the production area.

The structure will be approximately double the size of the present plant at 2739 Sixth Ave. South, occupied by Clough since 1941. Headed by C. C. Clough, the company also operates a second plant at West Sacramento, Calif.

Sunset Petroleum Buys 12,000-Acre Future City

SACRAMENTO—Sunset International Petroleum Corp. recently acquired for approximately \$9,000,000, a 12,000-acre site for a future city near here. The development will be known as Sunset City and will include industrial parks, shopping centers, single and multiple-family dwellings, lakes, golf courses and commercial and resort hotel-motel centers.

J. D. Sterling, Sunset International chairman, and Carlos Tavares, builder-developer who heads the company's real estate division, said the strategically located site, hub of the newest land rush in Sacramento's population boom, was purchased from the Sacramento Valley Investment Co.

The development is 20 minutes northeast of Sacramento and about five minutes north of Roseville, northern California's major railway and highway junction. The land is presently used for grain farming and livestock grazing.

New Paper Lab Finished

ALBANY, ORE.—Completion of a new \$100,000 laboratory here by Western Kraft Corp. has been announced by C. R. Duffie, vice president. The new facility is designed to test and develop new and improved packaging as well as pulping and papermaking processes.

Nogales Concrete Expands Operation

NOGALES, ARIZ.—E. M. Jeffcott, founder 11 years ago of the Nogales Concrete Materials Co. here, has sold the operation to John McChesney of Phoenix, but will remain with the firm an indefinite period.

McChesney says he plans to immediately install a first-class batching plant and modern, dependable transit trucks to serve the area with ready-mix concrete made from strictly specification materials.

Servonic Instruments Builds at Costa Mesa

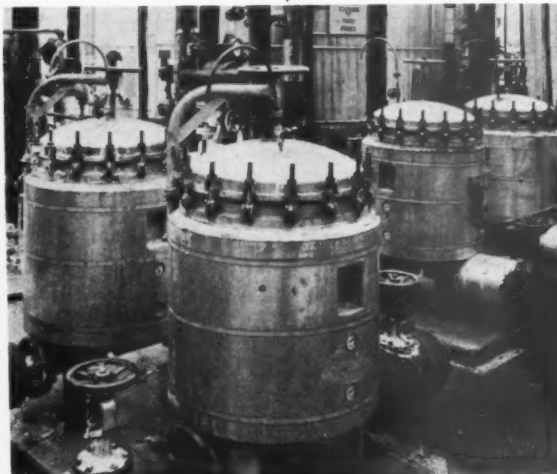
COSTA MESA, CALIF.—Ground was broken recently here for a new 25,000 sq. ft. engineering plant to house Servonic Instruments, Inc., potentiometer and transducer manufacturer.

Encompassing a four-acre site, the new tilt-up concrete building will be ready for occupancy in September. Servonic will ultimately employ 300 engineering and administrative people. The firm has outgrown its present plant here.

MONTGOMERY BROTHERS, INC.

ENGINEERING DEPT.
FIELD REPORT No. 2

CLIENT: Oronite Chemical Company,
a subsidiary of Standard Oil
Company of California.
PRODUCT: CFC Stainless Steel Flo-Pac
Filters.



Montgomery
Brothers, Inc.

REPRESENTS

Commercial
Filters Corp.

Edwin L. Wiegand
Co.

Pacific Chromalox
Sta-Warm Co.

Kanthal Corp.

Sherman Industrial
Electronics Co.

Ark-les Switch
Corp.

Aquamatic
Valve, Inc.

Radcor, Inc.



Commercial Filters Corporation Filters Assure Micro-Clarity of Oronite Isophthalic

Isophthalic, one of the most important raw materials developed for the protective coating and plastics industries, gives outstanding new qualities to paints, baking finishes, polyesters, polyamides, plastics and plasticizers. Oronite Chemical Company, a subsidiary of Standard Oil Company of California, assures absolute clarity of Isophthalic with CFC Filters.

Oronite makes good use of both surface and depth filtration. The CFC Flo-Pac Filter provides surface filtration in removing impurities as small as 5 microns in size. Tough resin-impregnated pleated paper cartridges each have more than 6300 square inches of filtering surface.

CFC Fulflo Filters, with genuine Honeycomb Filter Tubes, give true depth filtration through hundreds of filtering tunnels engineered for uniformity of size, shape, depth and density.

Fulflo Filters provide any degree of micro-clarity (down to 1 micron) for all types of petrochemicals, liquid chemicals, pharmaceuticals, oils, liquid fuels, water, compressed air, other gases.

Look to Montgomery Bros.—to improve product quality, reduce downtime, and cut production costs. Call or write for technical literature or engineering assistance to Filter Division.



MONTGOMERY BROTHERS, INC.

SAN FRANCISCO
1122 Howard St.
Underhill 1-3527

LOS ANGELES
1053 S. Olive St.
Richmond 7-5191

SEATTLE
911 Western Ave.
MAIn 4-7297

PORTLAND
1632 N. W. Johnson St.
CAPitol 3-4197

SPECIALISTS IN FILTRATION, ELECTRIC HEATING & CONTROLS FOR OVER 30 YEARS

... for more details, circle No. 65 on Reader Service Postcard

Two Los Angeles Firms To Share New Facility

MONTEREY PARK, CALIF. — Two Los Angeles firms, L. C. Miller Co. and LCM Engineering have announced their intention of sharing new plant and office facilities in the Monterey Industrial Park development.

The structure is being built at 717 Monterey Pass Road, here. It is of modern design with concrete tilt-up construction, and will encompass 13,760 sq. ft.

L. C. Miller Co. is engaged in specialized metalworking such as brazing by high frequency induction heating, ultrasonic and electric discharge machining.

LCM Engineering manufactures vibration equipment and systems for environmental testing.

\$40 Million PG&E Project Planned

SAN FRANCISCO — The Pacific Gas & Electric Co. will double the size of its Morro Bay power plant in San Luis Obispo County. Work on the \$40,000,000 project will begin Jan. 1 and should be finished in the winter of 1962-63, according to a company announcement.

The project will add 325,000 kilowatts to the plant. Only the company's Pittsburg, Calif., power plant, the largest in the West, will have more capacity.

PT&T Plan \$225,000,000 Improvements in LA Area

LOS ANGELES — James S. Cantlen, vice president and general manager of the Pacific Telephone & Telegraph Co., has announced plans to spend \$225,000,000 during 1960 and 1961 on capital improvements on its Los Angeles County operations.

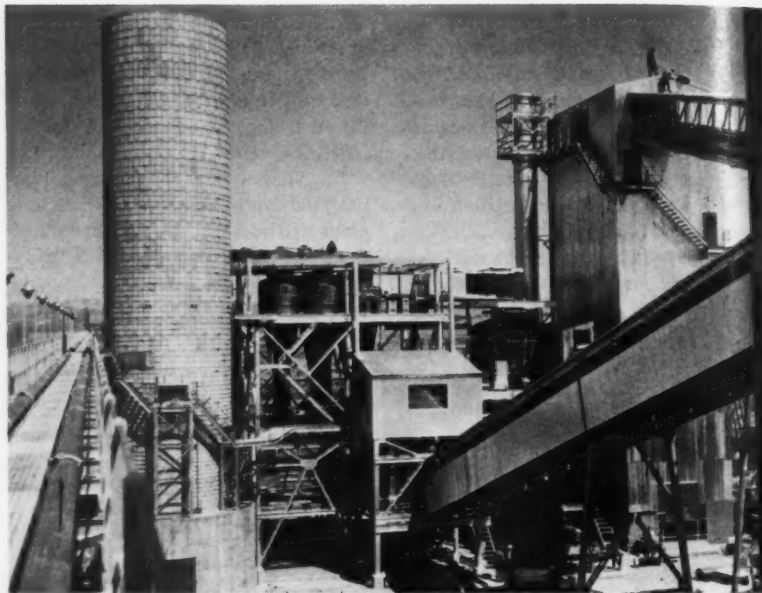
For the previous two years the utility's capital budget was \$300,600,000 and so far this year the firm has spent \$22,000,000 on land, buildings and service improvements, Cantlen said.

Rice Dryer Plant Slated For Woodland

WOODLAND, CALIF. — Plans of the Sunset Rice Dryer to build new rice drying storage facilities have been announced by Jack Doty of Pacific International Rice Mills, J.C.

The new plant is estimated to cost \$500,000. It will include three 50 foot drier stands, and concrete bins.

First of Its Kind West of the Mississippi



DRAGERTON — Utah's newest industrial facility, this ten-story coal drying plant near Wellington, will go into operation early this summer as a sister facility to Columbia-Geneva Steel's coal cleaning plant completed there last year. Beginning on the right, the major units of the open-structured facility for drying washed coal include a wet coal receiving bin; a reactor, where the drying takes place; a series of coal dust precipitators; and a scrubbing tower. The wash-

ing and drying process reduces sulfur and refuse content in coal destined for steelmaking at U.S. Steel's Geneva Works in Utah County.

A special feature of the new plant is a 100-foot air scrubbing tower where coal-dusty air passes through a sequence of water sprays and finally up through a stainless steel water eliminator. Cleaned air is discharged into the atmosphere and water is returned to the main coal preparation plant for reuse in washing process.

Goodrich To Expand Rocket Motor Plant

RIALTO, CALIF. — An expansion program which will ultimately result in three times the present manufacturing capacity has started here at the B. F. Goodrich rocket motor plant.

Frank R. Carvell, general manager of the propulsion facility operated by B. F. Goodrich Aviation Products, a division of B. F. Goodrich Co., said construction plans include a new office building, additional research and development facilities, and added production equipment and facilities.

The new office building, to be located at the corner of Locust St. and B. F. Goodrich Blvd., will be a one-story structure comprising 7,200 sq. ft.

The rocket motor plant is located on 160 acres at the northwest edge of Rialto. It was established in 1957.

Parke, Davis Building Los Angeles Facility

LOS ANGELES — Construction of a Parke, Davis office and warehouse facility at the intersection of Washington and Paramount Blvd. in the industrial district here has started, according to Lloyd Stoner, Southern California and Arizona division manager of the pharmaceutical firm.

As designed by Charles Luckman Associates, the initial increment will consist of 7,500 sq. ft. of office space and 32,000 sq. ft. of warehousing.

The office building structural system will be reinforced concrete for columns, floor slab and roof deck. Aluminum sections will form the actual exterior walls while an aluminum screen will be suspended from the roof structure at five feet beyond the exterior wall line.

Shaffer Interests Buy LA Steel Casting Firm

LOS ANGELES—R. H. McAllister, president of Los Angeles Steel Casting Co., has announced that the 58 year old organization has been purchased by Shaffer interests of Brea, Calif.

Los Angeles Steel Casting produces approximately one-third of the total steel casting tonnage used by industries in the greater Los Angeles area. It also supplies castings to industries in Colorado, Texas, Utah and Northern California.

Its output ranges in size from castings weighing only a fraction of a pound to giant castings as large as 10,000 lbs., and it has complete facilities for working in a wide range of ferrous metals.

McAllister states that no changes in personnel or policies are planned in the long-established operations of the Los Angeles Steel Casting Co. organization.

Milbro Engineers Names Ransburg Representative

SAN FRANCISCO—Milbro Engineers of Lynwood, Calif., West Coast distributors for Ransburg Electro-Coating Corp., has announced the appointment of Patrick Kirby to cover the Northern California, Washington and Oregon territory.

Kirby, with headquarters at 582 Market St., here, will handle sales engineering for the Ransburg line of equipment.

Weyerhaeuser Building At Snoqualmie Falls

SEATTLE—A new plant to produce end-glued lumber will be built at the Weyerhaeuser Co.'s Snoqualmie Falls, Wash., mill, with production in the new installation to begin in September.

The product produced by the new plant is known as Nu-Loc, made from short pieces of board previously used only for lower grade lumber and powerhouse fuel.

Chainveyor Appoints Key West Coast Rep

SAN FRANCISCO—Earle C. Call & Associates, 1485 Bay Shore Blvd., here, has been named as a key distributor representative on the West Coast by Patrick T. Rauert, president of Chainveyor Corp.

PAYLOADER®

THE OVERWHELMING CHOICE



**10,000
"HA" UNITS**

More than 10,000 of this "PAYLOADER" model have been sold for industrial use—more than any other rubber-tired tractor-shovel.

The Model HA continues to be one of the most popular tractor-shovels in the complete "PAYLOADER" line. Its reputation for digging power—to scoop up and carry 2,000 lb. loads—ability to maneuver in close quarters with its short turning radius... its day-after-day dependability and low cost of operation are some of the reasons for its sustained popularity.

FOR MAXIMUM CONTINUOUS PRODUCTION in close quarters, the new Model H-25 "PAYLOADER" is recommended. It has an even shorter turning radius (6 ft.) than the Model HA and more operating capacity (2,500 lbs.), more power, plus full power-shift transmission and power-steer for faster cycling and easy, effortless operation. It is the production champion in its class.

FOR ANY JOB of bulk materials handling, indoors or outdoors, there's a "PAYLOADER" size available—up to 12,000 lb. operating capacity. A nearby Hough Distributor, with complete service-parts facilities, is ready to discuss your needs.

HOUGH®

THE FRANK G. HOUGH CO.
889 SUNNYSIDE AVENUE
LIBERTYVILLE, ILLINOIS
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



Send me "Industrial Materials Handling
the PAYLOADER Way"

Name _____
Title _____
Company _____
Street _____
City _____
State _____

6-A-2

... for more details, circle No. 66 on Reader Service Postcard



"THIS LUBRICANT CUT OVERHAULS IN HALF"

—says WESTERN AUTO TRANSPORTS, INC.

"Operating over 200 tractors and 200 trailers from Detroit to the West Coast, we encounter temperatures from 120° above across the desert to 40° below in the mountains of Colorado. We have found that with LUBRIPLATE our wheel bearing packing mileage has tripled. Since using Lubriplate A.P.G.-90 in our transmissions and differentials, we are getting double the mileage between their overhauls."

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



... for more details, circle No. 67
100

New Tele-Vac Company Forms a Subsidiary

ALBUQUERQUE, N. M.—The new Tele-Vac Mfg. Co. here, which will manufacture television picture tubes, cathode ray tubes and camera tubes, has formed a subsidiary, the High Vacuum Engineering Lab, also located at 6425 Linn NE.

Ellwood A. Stevens, Jr., is president and general manager of both companies.

The parent company will make tubes for sale to television repair firms and to nuclear products firms in the area. The subsidiary will maintain, repair and calibrate all vacuum equipment manufactured by Central Scientific Co., Los Angeles, in use in this area.

Sanford Process Names Orange Firm Licensee

FULLERTON, CALIF. — The Orange County Metal Processing Co. here at 1711 Kimberly Ave., has been appointed licensee for the Sanford Process Co.'s aluminum hardcoating process, according to an announcement by John Meyer, Orange County Metal Processing Co. executive officer.

Douglas Fir Use Book Wins National Honors

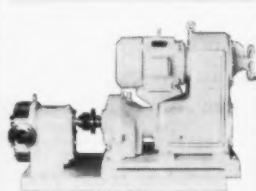
PORTLAND — The Douglas Fir Use Book, a 300-page cloth-back technical book produced by the West Coast Lumbermen's Assoc., won the highest national honors for the best technical publication in the building products field for 1959.

Criteria for judging by the jury of awards included consideration of technical value to architect, completeness and clarity, and organization of material for convenience of reference.

The certificate of exceptional merit was presented to T. K. May, technical director of West Coast Lumbermen's Assoc., at an annual awards luncheon recently in San Francisco.

Rohn Manufacturing Names Emmet Co. Representative

SOUTH PASADENA, CALIF. — Frank A. Emmet Co., here, was recently appointed factory sales engineering representative for Rohn Manufacturing Co., Peoria, Ill., makers of transmitting towers. Emmet will cover Southern Nevada, Southern California and Arizona.



CALL OR WRITE
PETERSON AND PETERSON
EQUIPMENT ENGINEERS
FOR
WAUKESHA INDUSTRIAL AND SANITARY PUMPS

WAUKESHA INDUSTRIAL & SANITARY PUMPS

OFFER...

- low speed
- heavy duty
- long life
- self-priming

WAUKESHA—the largest and most experienced (since 1912) manufacturer of corrosion resisting P.D. pumps.

CORROSION RESISTANT PROBLEMS

involving high or low viscosity liquids are efficiently solved with WAUKESHA positive displacement pumps! Contact areas are 316 stainless steel or nickel alloy.

Impellers of corrosion resistant metals or synthetic rubber are available. Choice of seals. WAUKESHA pumps are precision made in sizes from 1-inch to 4-inch. For detailed information and complete engineering service regarding your particular problem or application, write or phone

PETERSON AND PETERSON,
2705 Tenth Street, Berkeley 10, California;
phone THornwall 1-7981.

... for more details, circle No. 68 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

Martin Co. Launches \$3 Million Expansion

DENVER—The \$3,000,000 construction program has been launched at the Martin Co. plant, southwest of Denver, to help streamline production operations on the Titan inter-continental ballistic missile.

A new three-floor administration building of 120,000 sq. ft., six times larger than present facilities, will be completed Nov. 1.

Work also is under way on the 136,000 sq. ft. million-dollar inventory warehouse set for completion Sept. 1.

Other new construction under way at the plant includes a \$350,000 structure for research and development in liquid hydrogen, an acoustic test facility and doubling the steam boiler capacity to serve the new structures.

The firm, with a payroll in excess of 10,000 persons, now is the area's largest employer.

Stauffer Breaks Ground On New Research Center

RICHMOND, CALIF. — Officials of the Stauffer Chemical Co. broke ground recently here on the company's new Richmond research center.

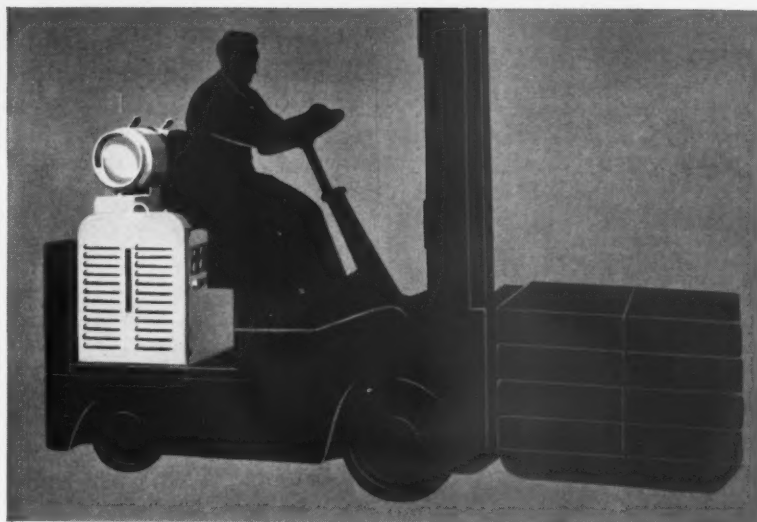
The unit, to be built at a cost of \$1,600,000, will be located on a 10-acre site at South 47th St. and Meade Ave., adjacent to the firm's manufacturing plant.

The research center, when completed, will be a two-story structure with 53,000 sq. ft. of floor space. It will be of wing-type design to facilitate future expansion, using reinforced concrete with aluminum in-fill panel exterior walls. The laboratory area will contain 23 four-man labs and service facilities. The building is scheduled for completion in May, 1961.

Garrett Enters Agreement To Form New German Firm

LOS ANGELES—A new company, Interaero GmbH, has been formed by Hans Liebherr, a German industrialist, and Garrett International S.A., Geneva, a wholly-owned subsidiary of The Garrett Corp., here.

Interaero is designed to meet expanding aircraft business in Western Germany and in the future will sell, manufacture, repair and overhaul certain products now produced by Garrett divisions here and in Phoenix, according to a Company announcement.



LP-Gas Model HA-3 with recessed housing can be installed on sit-down trucks without seat alteration.

Ready-Power Units Power Trucks At Lowest Cost Per Ton-Mile

ASSURE FULL-TIME POWER FOR YOUR ELECTRIC TRUCK

It costs you less to move materials when your electric truck is equipped with Ready-Power. The compact Ready-Power Unit consists of a dependable industrial engine and DC generator. It is easily installed or interchanged on practically any make of truck and generates full capacity power whenever needed. There is no power lag, no truck slowdown. Ready-Power also eliminates the constant recharging and replacement of stored power.

Save money and assure full-time power for your materials handling vehicles. Mail the coupon below for complete information on Ready-Power Units.

SERIES HA FOR FORKS UP TO 8,000 LBS., PLATFORMS UP TO 10,000 LBS.



Ready-Power Series HA Units are designed for use with medium size fork, platform and crane trucks. They are available with gasoline or LP-Gas fueling systems, with conventional housing for stand-up trucks or recessed housing for sit-down trucks.



READY-POWER

FREE TECHNICAL
BULLETIN
99A



Mail
this
coupon

The Ready-Power Company
3854 Grand River Avenue
Detroit 8, Michigan

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

... for more details, circle No. 69 on Reader Service Postcard

ELPAR

**3,000 & 4,000 lb.
Capacity
Electric
Fork
Truck**

Model F-45T
— 3,000 or
4,000 lb. cap. with
48" long load.



PRICED TO FIT ANY BUDGET

The ELPAR F-45T is priced competitively yet offers the ultimate in quality that's traditional with all ELPAR electric trucks. Check these advantages:

- Fast Travel and Lift
- Compact and Maneuverable
- Tough and Dependable
- Outstanding Safety

And, it's economical. The F-45T operates on only pennies per day and is designed for fast, easy maintenance.

AVAILABLE FOR FAST DELIVERY

Write for your
F-45T catalog today!



**The ELWELL-PARKER
Electric Company**

4038 St. Clair Avenue • Cleveland 3, Ohio
In Canada: Industrial Equipment Co., Ltd.

Montana Forest Products Build \$1 Million Sawmill

PHILIPSBURG, MONT. — Construction has started on the \$1,000,000 sawmill for the Montana Forest Products Co. Working two shifts daily, the mill will produce about 80,000 board ft. per shift. To be built along the lines of mills in Sweden, the new facility will process small timber from the nearby area, including purchases from both the Forest Service and private individuals.

Operation is expected about Oct. 1. Besides finished timber, chips also will be produced to be sold to the Waldorf Hoener Paper Co. in Missoula.

A. E. Hurl, Portland, vice president and general manager of the firm, said 80 men will be employed in the mill itself in addition to 50 others in the woods. An estimated 14 trucks will be needed to keep the plant in production.

Standard Oil Forms New Land Department

SAN FRANCISCO—Standard Oil Co. of California, Western Operations, Inc. has announced establishment of a new Land Department and appointment of D. G. Couvillon as its general manager.

The new department consolidates the activities heretofore carried on by Western Operations' Real Estate and Right of Way Dept., Land Div. of the Exploration Dept., and Contracts Div. of the Producing Dept.

Standard explained the Land Dept. was created to provide more specialized attention to land and right of way matters and to facilitate effective coordination of land functions previously carried on by separate parts of the company.

Merchants Express to Serve 480 New Cities

MONTEBELLO, CALIF. — The Public Utilities Commission of California recently awarded Merchants Express of California authority to serve more than 480 new cities and communities throughout the state.

These new points are in addition to more than 840 points previously serviced by the pioneer intrastate carrier. Important additional service points include San Diego, Oxnard, Ventura, Santa Barbara, Santa Maria, San Luis Obispo, Ukiah, Willits, Yreka, Weed, Grass Valley, Nevada City, Placerville and Sonora.

Three Times Faster Than a Man on Foot



LOS ANGELES — Bill Moore is shown serving the customers of the Robert H. Braun Co., local material handling distributor, on his fleet and roller skate clad feet. When asked why he wears roller skates his answer was simple. "I can fill orders three times as fast as the men who have to walk around the warehouse." He further commented that skating puts more pleasure in his work and that he loves to skate. Bill is a warehouseman and shipping clerk for the Braun firm and donning the skates was his own idea.

Robertshaw's Grayson Div. Wins Highest Safety Award

LONG BEACH, CALIF. — The National Safety Council's Award of Honor, constituting the nation's highest recognition for safety in industrial operations, has been awarded to the Grayson Controls Div. of the Robertshaw-Fulton Controls Co., it was announced last month.

The Grayson Div., here, was one of only 21 plants in the nation in the machinery field which were selected for the Safety Council's highest award. The Council serves some 25,000 industrial plants in all categories across the country.

The Grayson award was made in recognition of the plant's completion of more than 3,000,000 consecutive man-hours of operation without a disabling injury during the period ending Dec. 31, 1959. In Grayson's case, the citation indicated a total of 3,809,896 man-hours without a lost-time injury from Sept. 24, 1958, to Dec. 31, 1959.

... for more details, circle No. 70

West Coast Adhesives Opens Glue Facility

PORTLAND—A new manufacturing firm for products especially developed for the Pacific Northwest, West Coast Adhesives, has started operations in its new plant here at 11104 Front Ave.

The firm will produce adhesives including all recommended varieties used in manufacturing plywood and doors, including blood and soya for interior and exterior grade plywood, phenolic resin and urea, according to president and general manager, Jack Carroll.

The plant covers 10,000 sq. ft. and represents an investment of approximately \$75,000, Carroll said. Directors of the firm are Fred Pierson, general manager of Astoria Plywood Corp., and Charles Marchant, president of Multnomah Plywood Corp.

Exposition Organizations Announces New Division

LOS ANGELES—Formation of Perkins-McDonald, Exposition Equipment & Service, as a division of A. Byron Perkins, trade shows and exposition producers and managers, has been announced by A. Byron Perkins, president.

Complete service and rental facilities, including decorative items, standard booths, furniture, signs and all types of equipment required for trade shows and expositions will be supplied by the division which will headquarter with the parent organization at the company's new offices and warehouse at 2216 South Hill Street, here.

American MonoRail Names Western Reps

BAKERSFIELD, CALIF.—Two Western firms have been appointed special sales representatives for the American MonoRail Co.

The BA-Valley Industrial Supply Co., 141 First St., here, directed by F. Ahumada, Jr., will cover the Kern and San Luis Obispo section, according to L. Payne Helbert, MonoRail's Pacific Coast Division sales manager. He also announced that Chambers Steel Co. of 2077 Kurtz St., San Diego, will serve San Diego and Imperial counties.

Both firms will handle the full American MonoRail lines of engineered overhead material handling systems.

New Ownership, Expansion Plans for Downer Lumber

LIVINGSTON, MONT.—D. M. Downer, president of the Downer Lumber Co., has announced sale of controlling interest in his firm to H. C. Mason and his associates of Portland, Ore., for \$2,500,000.

Clayton Almquist, associated with J. R. Simplot Co., Caldwell, Idaho, for 14 years, will be general manager.

Downer said the new owner plans construction of a \$1,000,000 plywood plant at the mill, just east of here.

American Gypsum Co. Equipping New Plant

ALBUQUERQUE, N. M.—American Gypsum Co., which began work on the \$3 million plant here recently, announced purchase of \$900,000 worth of plant equipment, according to M. M. Hardin, president.

The machinery was bought under a combined contract from J. B. Ehrsam and Sons, Enterprise, Kan., and Moore Dry Kiln Co., Portland, Ore.

Target date for completion is September 1.



When You Want
Top-Quality
Gears or Machine Work
call
**JOHNSON
GEAR**

Here's quick guide to gear types and sizes, and machine work we can handle for you—

Spur Gears	72" dia.	1 DP
Internal Spur Gears	28" PD	¾ DP
Helical Gears	72" dia.	2 DP
Herringbone Gears	72" dia.	2 DP
Bevel Gears	60" dia.	1 DP
Miter Gears	54" dia.	1 DP
Worm Gears	72" dia.	subject to available hobs
Worms	8" dia.	2" CP
Racks	5" face	3 DP
Roller Chain Sprockets	72" dia.	2½" pitch
Silent Chain Sprockets	72" dia.	Morse & Whitney

Surface grinding to 26" dia.

Cylindrical grinding to 10" max. swing and 48" long.

Internal grinding to 10" ID x 16" OD x 9" thru.

Spline and keyway broaching
Keyseating to 2" wide x 24" long.

Engine lathe turning to 34½" dia.

Monarch tracer lathe work to 20" OD x 72" long.

Turret lathe work to 18" OD.

We work in both metallic and non-metallic materials.

Remember, every job we do for you is backed by nearly 50 years of gear engineering experience; by a 100% inspection policy to assure accuracy as far as humanly possible. Why settle for less? Send us your drawings for quotations, or phone THornwall 5-7376.



JOHNSON GEAR

& MANUFACTURING CO., LTD.

8TH AND PARKER STREETS • BERKELEY 10, CALIFORNIA
MAKERS OF FINE GEARS SINCE 1904

15J

... for more details, circle No. 71 on Reader Service Postcard

103

Both Sides Adhere INSTANTLY!



Shuford's SHURTAPE® DF-69

DOUBLE-FACED TAPE

Adheres instantly to flat, curved or irregular surfaces . . . highly flexible.

Both sides of this pressure-sensitive paper tape are coated with a water-resistant, rubber base adhesive. Features high adhesion level and easy release. Slit liner in widths from 1" to 12". Can be die-cut or shear cut for specific applications.

Use SHURTAPE DF-69 for holding, splicing, mounting, and laminating purposes . . . in manufacturing, packaging or packing . . . whenever two-way "stick" is needed.

For free sample roll, ask your
ZELLERBACH PAPER COMPANY
Representative
or write



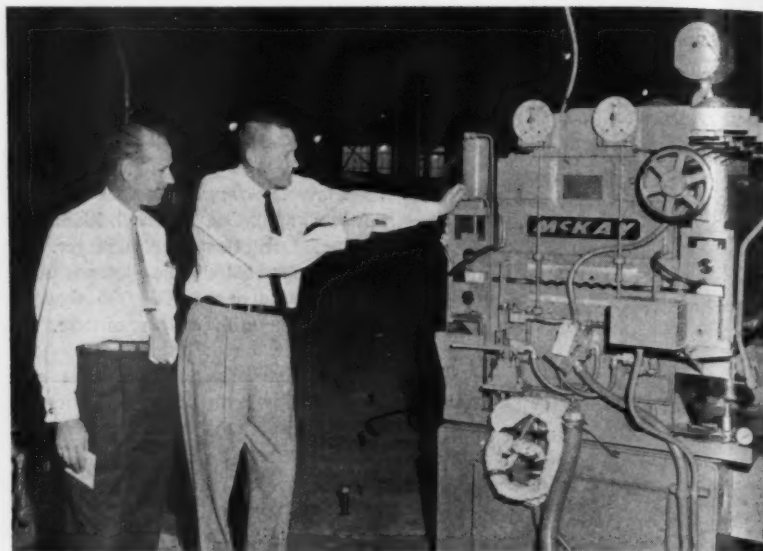
World's Largest Manufacturer of
Cotton Cordage

4726

. . . for more details, circle No. 72

104

Maas-Hansen Installation for Leveling Coiled Stock



Pointing with pride to new McKaymatic Die Shear and Leveling component just delivered to Maas-Hansen Steel is Art Maas, Jr., as Charles P. Hansen looks on. Unit when complete will automatically level and cut varied coil stocks.

LOS ANGELES—Just arrived at Maas-Hansen Steel Corp., here are components that when placed in operation this month will comprise one of the largest leveling installations in the West and will handle coiled stock up to 60-in. wide.

Called the McKaymatic Die Shear and leveler, it will handle aluminum up to .102-in. maximum thickness, stainless to .060-in. and carbon steel to .072-in. dimension.

Controls have a dialed-in. dimension feature that allows the operator

to set the machine to cut desired lengths of flat sheets in a continuous action that eliminates waste ends.

The unit will shear strip as it travels at speeds required by the leveling device. The shear die moves at the same speed as the strip, makes the cutoff and returns immediately to perform the next programmed cut.

According to Art Maas, Jr., the McKaymatic line will not only be used to process customer orders but will be offered as a service center feature to outside industry.

Major Acquisition For Idaho Maryland Mines

GLENDALE, CALIF.—Acquisition of the business and assets of the Ferro Cast and the Magnetics Divisions of the J. B. Rea Co., Inc., Santa Monica, Calif., was announced recently by George J. Morton, president of Idaho Maryland Mines Corp., here.

Morton stated that the addition of the Ferro Cast and Magnetics Divisions marks a major step in the corporation's acquisition plan to broaden the scope of its activities within the fields of aerospace research, development, and production.

The new divisions are located at 2202 Broadway, Santa Monica, with two plants totaling approximately 30,000 sq. ft. The Ferro Cast Div., with approximately 150 employees, produces investment castings.

Lodge & Shipley Lathes Names Seaboard As Rep

LOS ANGELES — Seaboard Machinery Co., 3212 East Olympic Blvd., here, has been appointed Southern California distributor for Lodge & Shipley Lathes.

A Cincinnati company, Lodge & Shipley manufactures many different models of lathes.

New Idaho Firm to Make Wood Products

EMMETT, IDA.—Construction has started on a new industry to be known as Kimmel Corp.

The firm, managed by Robert Kimmel, will deal in wood products, will do mill work and manufacture wood-stock items and stock for toy parts in the 60x100-ft. building on North Boise Ave.

Calif. Standard Builds Pipeline in Alaska

ANCHORAGE, ALASKA—Plans for construction of a 20-mile common carrier crude oil pipe line and marine terminal facilities on Kenai Peninsula were announced recently by Standard Oil Co. of California, Western Operations, Inc.

Total cost will be more than \$4,000,000, and completion is scheduled by mid-1961.

The project will include an 8-in. line to a new marine terminal at Nikiski on the Cook Inlet 20 miles to the west of the producing area with pumping stations and a pattern of feeder lines in the Soldotna Creek and Swanson River Unit oil fields. It will be owned by the Kenai Pipe Line Co., a newly-formed operating affiliate.

Completion of the pipe line will eliminate present limited trucking of crude oil to Seward on the southeast coast of the peninsula.

Denver Fire Clay Streamlines Plant

DENVER—Denver Fire Clay Co. this year will add another \$135,000 to the \$200,000 it has already spent in modernizing its local plant, according to Richard Shepard, president.

Chief items will be a 75-ton hydraulic press for special refractory shapes used in the steel, petroleum refining and sugar industries.

Major part will be new clay-preparation machinery to be custom-designed and built by Stearns-Rogers Mfg. Co. of Denver and a new shuttle kiln that will double capacity.

William O. Brandt, manager of the refractory div., is in charge of the expansion program.

New Space Laboratory Activated at Burbank

BURBANK, CALIF.—Formal activation of Space Systems Laboratories, at 4421 Riverside Drive, here, has been announced by Dr. Morton Alperin, president of Space Systems & Industrial Automation, Inc.

Dr. Alperin stated that Space Systems Laboratories is providing research, analysis, and development services on a wide variety of programs dealing with the physical, biological, and engineering aspects of space technology.



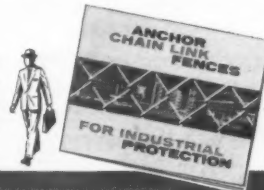
John Burrows, Plant Mgr., Ralston Purina, Davenport, Iowa, says:



"...Anchor Fence really solved our problems."

"Our plant area used to be what the legal profession calls an 'attractive nuisance.' Children and dogs had access to the grounds. And we had pilferage and traffic tangles to cope with too. The installation of Anchor Fence really solved our problems. Traffic now flows more smoothly, employee cars are protected, and of course the safety of children is no longer a headache. The Anchor men made numerous trips to the plant to be sure the job was tailor-made to our needs."

Call your local Anchor office today for a talk with one of Anchor's trained sales engineers. Write for free catalogue to: ANCHOR FENCE, 6620 Eastern Ave., Baltimore 24, Maryland.



Plants in Baltimore, Md.; Houston, Texas; and Whittier, Cal. • Sold direct from factory branches in principal cities.



... for more details, circle No. 73 on Reader Service Postcard

Safeway Building Salt Lake Facility

SALT LAKE CITY—Safeway Stores, Inc., will build a million-dollar perishable goods warehouse at 2275 South 8th West as the first unit of a long-term expansion of warehouse and distribution facilities here, according to *W. E. Williams*, manager of the Salt Lake Div.

The development will serve Safeway Stores throughout the Intermountain Region. The 43,000-sq.-ft. structure will be completed in May 1961.

General facilities will include the warehouse proper, truck docks capable of handling 26 semitrailers at one time and a rail spur and dock connected with Denver & Rio Grande Western Railroad Co., handling four cars at once.

Western Electric Co. Builds Supply Center

SALT LAKE CITY—Western Electric Co. has exercised its option for 16.5 acres in Industrial Center, 21st South, on which it will build a 125,000-sq.-ft. distribution center, according to *A. J. Boesch*, manager of WEC at Denver.

Construction, scheduled to start this spring, is expected to be completed for 1961. The center here will supply company operations in Utah, Idaho and parts of Montana.

Thermo Electric Opens So. California Office

TARZANA, CALIF.—Thermo Electric Co., Inc., Saddle Brook, N. J., manufacturers and designers of temperature measuring systems, thermocouples and accessories, has opened a new factory office to service Southern California.

The new Thermo Electric office, located at 19458 Ventura Blvd., here, will be managed by *Joseph J. Ghiglia*, formerly with the home office.

Mobile Home Window Plant for Idaho

NAMPA, IDAHO—The Chamber of Commerce announced recently that the Hehr Mfg. Co., producer of mobile home windows with plants in Los Angeles and Chesaning, Mich., will locate a plant here.

Elmer T. Hehr, president, has completed negotiations with the Nampa Industrial Corp. for a 10,000-sq.-ft. factory and office on Industrial Rd.

Republic Supply To Handle Powell Valves



LOS ANGELES—Looking over catalogs for the newly acquired stocking distributorship for Powell Valves at Republic Supply of California, local office is *Bill Jordan*, Los Angeles manager, William Powell valves, left; *Charles B. Williams*, general products manager, Republic Supply; and *Monroe S. Yunker*, manager of Los Angeles industrial sales department, Republic Supply.

In their local warehouse, Republic is stocking the full line of Powell valves in bronze, iron, stainless and corrosion resistant metals for California and Arizona markets.

'Private Eye' for Rockets Promises Commercial Uses

AZUSA, CALIF.—Aerojet-General Corp. has announced the development of an optical inspection device of great versatility.

Designed specifically to give a detailed interior view of the grain bore for solid rocket motors, the optical inspector can also be used in a portable version to probe pipes, tanks, airplane wings, boilers, or any type of irregular enclosure presenting hard to get at interiors. Current versions can conduct a probe of 30 ft. with one insertion.

The optical grain checker features a safe external light source, a mirror which is driven along a slotted optical tube and a specially designed telescope which magnifies the image of the grain reflected by the mirror.

Airborne Freight To Build Headquarters

SAN FRANCISCO—A \$250,000 headquarters for Airborne Freight Corp. will be built at San Francisco International Airport soon, according to *J. D. McPherson*, president. He predicted an 11-fold growth in the company's business by 1965. The present annual gross is \$12,000,000.

New Retread Plant Ups Goodrich Output

OAKLAND, CALIF.—A new manufacturing plant with the capacity to produce 9,000 tire retread units a month, was opened here last month by B. F. Goodrich Tire Co., a division of The B. F. Goodrich Co.

The new facility at 745 Independent Rd. will more than triple the firm's tire retread output in the San Francisco Bay Area. It replaces a plant at 9th Ave. and 14th St. which the company operated since 1951.

According to *O. K. Lynn*, San Francisco zone manager, the new plant will produce about 2,250 retread units a week. Modern presses utilizing the newest type of matrices will handle a full range of tire sizes from 5.50-16 to 14.00-24.

Marwais Steel Named Alcoa Jobber-Erector

LOS ANGELES—The Metal Plate Guard Rail Div. of Marwais Steel Co., local metals fabricator and distributor, has been appointed a jobber-erector for aluminum guard rail.

An Alcoa product, the all-aluminum guard rail is engineered to offer complete freedom from maintenance and assures rapid erection. Marwais will handle sales and installation throughout the 11 Western states.

Calstrip Steel Names Palo Alto Distributor

LOS ANGELES—Calstrip Steel Corp., here, has appointed as sales agents for Northern California and the Pacific Northwest the Special Metals Supply, Inc., of Palo Alto. *Thomas E. De Hart* is president of the Bay Area firm and *Joseph Malo*, vice president. The appointment is designed to provide improved customer service to users of stainless, spring steel and low carbon strip steels.

American Electronics Adds To Facilities

CULVER CITY, CALIF.—Approximately 10,000 sq. ft. of additional manufacturing space have been acquired by the Instrument Div., American Electronics, Inc., adjacent to their present facilities, to meet increasing demands for the division's servo assemblies, servo rotary components and electronic sub-systems, according to *Jerry Yablonka*, division general manager.

Weyerhaeuser Co. Opens Seattle Research Div.

TACOMA, WASH.—A new branch office of Weyerhaeuser Co.'s research division was opened June 1 in Seattle, according to *Norton Clapp*, Weyerhaeuser president.

About 20 specialists are housed in the remodeled building located at 4132 Stoneway.

Two functions will be performed, Clapp said. One section headed by *Dr. Fred Shafizedh* will engage in pioneering research, the scientific investigation of problems connected with all types of timber products. Another section, whose head has not been appointed, will be concerned with research in the building materials field.

"We are locating this office near the University of Washington," Clapp said, "so that our scientists can take full advantage of closer contacts with University personnel and facilities."

Airplane Seating Firm Purchased

BURBANK, CALIF.—Purchase of Teco, Inc., designers and builders of aircraft seating systems, was announced recently by *E. Gilbert Mason*, engineer-designer, and *J. Ross Clarke II*, financier.

The 10-year old company employing 125 will be headed by Mason, as president and general manager. *Gordon Jones*, former owner and founder, will continue as consultant and to develop foreign markets.

An 18,000 sq. ft. building expansion to accommodate a plastics section is under construction. The new owners will produce the "Mason Seat," which its inventor states will provide 10 to 20 per cent more seats in an average transport. The seat will be made of lightweight plastic and will have several integral adjustments.

Anaconda Wire & Cable Opens Phoenix Office

PHOENIX — Anaconda Wire & Cable Co. here announced the opening of a district sales office here. *D. Owen Nicholson*, who has been a sales representative of the company's Los Angeles office since 1954, has been named Phoenix district manager. His headquarters will be located in the Central Towers Building.

Dashew Acquires Santa Ana Firm

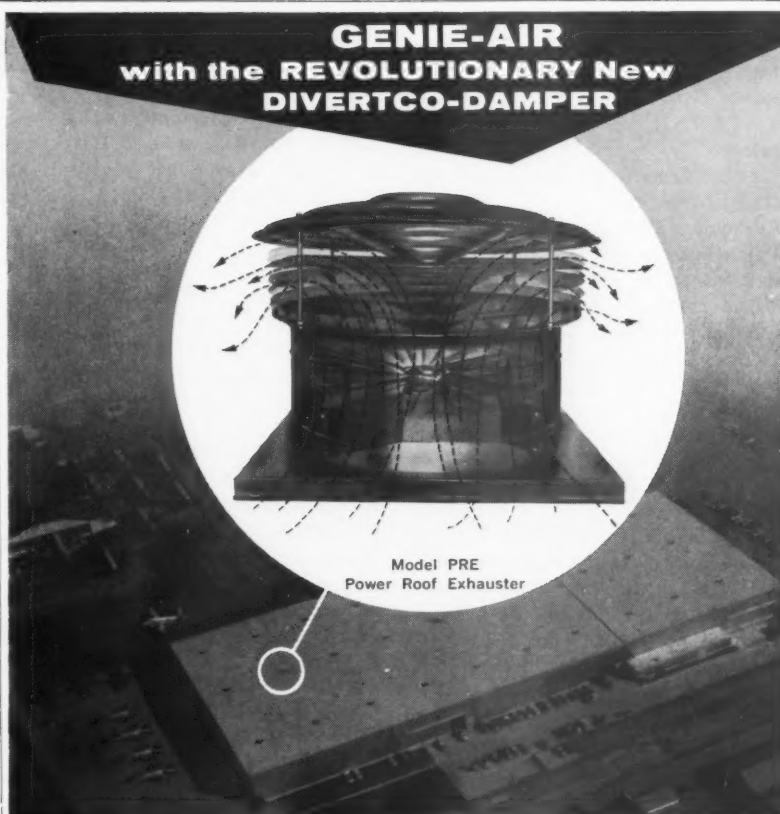
LOS ANGELES—The Duplicard Co. of Santa Ana, Calif., has been acquired by Dashew Business Machines, Inc., here, in a recent transaction.

Robert Williams, president of Duplicard, will remain with the subsidiary company in a consultant capacity. The acquired company's line of 13 machines used in the data processing field are being marketed under the trade name of Dashew Transfer Printer.

Crown Zellerbach Building St. Louis Packaging Plant

SAN FRANCISCO — Crown Zellerbach Corp. will consolidate its Kansas City and St. Louis flexible packaging operations in a new plant to be constructed at Hazelwood near the St. Louis airport, it was announced by *D. J. Benjamin*, vice president for packaging.

"We are consolidating these plants to provide better service for our customers in the Midwest and East," according to *M. A. Barr*, general manager of the Western-Waxide division.



Efficient, Automatic, Air Exhaust, Recirculation and Supply

Genie-Air products are designed and built for more effective ventilation and air control in large volume industrial type buildings. Design superiority is reflected in the positive operating, completely automatic new DIVERTCO-DAMPER.

The cone shaped spun-aluminum damper is lifted by the column of discharged air and seated against the Weather-Dome cover. There it serves to divert the flow of air out radially, to exhaust around the full circumference of the unit.



There is a Genie-Air model to meet every type and size of ventilation problem. For information and prices on the full line, write or phone:

Genie-Air, inc.
Dept. PF P.O. Box 39691
Los Angeles 39, California — ADams 3 8247

Contract News for the West

LOS ANGELES — Over \$14,000,000 in Army Ordnance contracts were awarded April 22 and May 13 by the U.S. Army Ordnance District, Los Angeles.

Sperry Utah Engineering Laboratory, Salt Lake City, was the recipient of the largest single contract, \$5,303,913 for Sergeant missile research and development and also \$283,706 for Sergeant missile equipment.

Second largest award went to Radioplane, a Div. of *Northrop Corp.*, Van Nuys, Calif., specifying \$3,457,070 for target missile production. *Norse-Thermador Corp.*, Vernon, Calif., received a \$1,587,872 contract for cartridge cases.

Other firms receiving contracts include: *North American Aviation, Inc.*, Rocketdyne Div., Canoga Park, Calif., a classified contract for \$364,025; two contracts totaling \$148,043 for rocket engine calibration and test services; and the Autonetics Div. at Downey, Calif., two contracts, \$98,670 research and development for a digital computer and \$92,000 research and development for a field artillery digital computer.

Douglas Aircraft Co., Inc., Santa Monica, Calif., contracts totaling \$779,442 for Nike missile repair parts and \$110,129 for Nike missile system repair parts. *Gilfillan Brothers, Inc.*, Los Angeles, \$490,275 for Nike missile system components. *Firestone Tire & Rubber Co.*, Los Angeles, \$262,740 for Corporal missile repair parts, \$123,742 for engineering services related to Corporal missile and ground handling equipment and \$38,500 for Corporal missile spare parts.

Motorola, Inc., Scottsdale, Ariz., \$106,509 research and development for miniaturization and repackaging of transponders, and \$33,397 for decoder subassembly at their Phoenix plant.

Convair, a Div. of *General Dynamics Corp.*, San Diego, \$99,438 for radar research, and \$41,644 for basic research regarding recoil atoms to their General Atomic Div. at San Diego.

Bendix Computer Div., *Bendix Aviation Corp.*, Los Angeles, \$83,716 for dimensional flight simulator and

auxiliary equipment, and \$28,866 to Bendix's North Hollywood plant for engineering investigation of high pressure hydraulics.

AiResearch Mfg. Co., Los Angeles, \$83,560 for Nike missile system repair parts. *Harvey Aluminum, Inc.*, Torrance, Calif., two contracts totaling \$57,000 for fuse metal parts assembly and a \$50,313 contract for catapult assemblies.

Ford Motor Co., Aeronutronic Div., Newport Beach, Calif., \$80,000 guided missile research and development and a \$49,567 classified contract. *Associated Aero Science Laboratories, Inc.*, Hawthorne, Calif., a \$84,550 contract for technical assistance at the U.S. Army Ordnance Guided Missile School, Redstone Arsenal, Ala.

Vickers Inc., Aero Hydraulics Div., Torrance, Calif., \$80,946 for Nike missile system repair parts. *California Institute of Technology*, Pasadena, \$75,000 research and development for hypersonic wind tunnel research. Consolidated Western Steel Div., *U.S. Steel Corp.*, Los Angeles, \$43,890 for rocket motor cases. *Cooper Development Corp.*, Monrovia, Calif., \$41,416 for loading, clustering and testing of LOKI motors. *Packard Bell Computer Corp.*, Los Angeles, \$38,028 research and development for a high speed digital simulator system.

Telecomputing Corp., North Hollywood, \$29,061 for warhead testers. U. S. Flare Div., *Atlantic Research Corp.*, Saugus, Calif., two contracts totaling \$55,960 for development of illuminating shells. *Preshaw & Thompson, Inc.*, Van Nuys, \$26,756 for Nike missile spare parts.

The San Francisco Ordnance District on May 6 awarded a \$999,520 contract to *Pacific Car and Foundry Co.*, Renton, Wash., for powerful new winches used in tank recovery operations. The company developed the new winch under a research and development contract.

Among follow-on contracts reported to WESTERN INDUSTRY during the past month were the following:

A \$3,500,000 contract for *Lockheed Aircraft Service*, Ontario, Calif., from the Burroughs Corp. to install and

flight test an airborne electronic system that will provide a seaward extension of the SAGE defense network. A \$1,700,000 contract was awarded *Lear, Inc.*, Santa Monica, Calif., from Ryan Aeronautical Co. for automatic flight control and stabilization systems for Q-2C recoverable target drones. *Motorola Semiconductor Products Div.*, Phoenix, received \$1,272,000 from Autonetics, a div. of North American Aviation, Inc., for research and development of high reliability semiconductor components for the Minuteman intercontinental ballistic missile program.

Hughes Aircraft Co., Industrial Systems Div. received a \$120,000 contract for numerical machine tool control units from Burg Tool Mfg. Co. of Gardena, Calif. *Telemeter Magnetics Inc.*, Culver City, Calif., a \$600,000 add-on contract from General Electric Co.'s Computer Dept. at Phoenix for solid state memory systems. United Airlines awarded *Consolidated Systems Corp.*, a CEC, Bell & Howell subsidiary, a contract in excess of \$250,000 for airborne vibration monitoring systems.

Contracts totaling in excess of \$600,000 for the construction of three buildings at the Polaris missile base at Point Mugu, Calif., near Oxnard, were awarded to P. I. Steel Corp.

Ling-Altec Electronics Forms a New Company

ANAHEIM, CALIF.—Formation of a new company for the service and installation of vibration and high intensity sound equipment of Ling-Altec Electronics, Inc., was announced recently by *Cameron G. Pierce*, president.

The new company will be a division of Altec Service and will be headed by *C. S. Perkins*, vice-president of Altec Companies, Inc.

Packaging Company Opened in Loveland

LOVELAND, COLO.—The Silver State Packaging Co. has been established here for the manufacture of polyethylene covers and liners, according to President *Ralph N. Snideman*.

He said a contract had been negotiated with several large hospitals in Philadelphia, Pa., to supply them with all types of bags and hospital supplies.

Available NOW



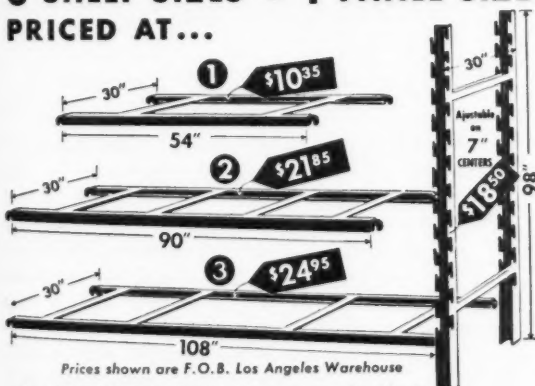
STANDARD SIZE
PALMER-SHILE Adjustable
STORAGE RACKS
SERIES 60
Pat. App. For



CARRIED IN STOCK
For Immediate
Delivery...
RIGHT HERE IN THE WEST

**JUST TWO STEPS—SET UP PANELS
SNAP SHELVES IN POSITION**

**3 SHELF SIZES • 1 PANEL SIZE
PRICED AT...**



Prices shown are F.O.B. Los Angeles Warehouse

★ **CAPACITY 5000 lbs. per shelf** ★

IMMEDIATE DELIVERY FROM STOCK OF LOW COST P-S Standard Series 60 Racks are ideal where fast action is necessary to solve your storage problem. Built of sturdy steel channel they are capable of handling almost any kind of materials and merchandise on pallets, skids, boxes or barrels. Come in four pieces—A. Vertical PANEL 8 1/2' high, 30" deep and 2 1/2" wide with shelves adjustable to 7" centers. B. THREE DIFFERENT SHELF LENGTHS 4 1/2', 7 1/2' and 9' each 30" deep. No small parts, set entirely by hand, top shelf can be flush. Standard racks can be joined in multiple sections of the same shelving lengths, or any combination.

★ **Can Be Built To Customer Specifications**

DESIGNED AND MANUFACTURED BY

Palmer-Shile Co.

16018 FULLERTON AVE., DETROIT 27, MICH.

WOOLDRIDGE CO.,
1209 Burlingame Ave., Burlingame, California • Diamond 2-0823
6440 Fleet Street, Los Angeles 22, California • RAYmond 3-3733
EQUIPMENT ENGINEERING,
1400 Ruth Drive, Denver 16, Colorado • ATLAS 7-5255
RECORD SALES COMPANY,
93 Connecticut Street, Seattle 4, Washington • MAIn 2-0737

... for more details, circle No. 75 on Reader Service Postcard
WESTERN INDUSTRY/JUNE 1960

new airmatic Air-Operated "C" Clamp



**SIMPLIFY CLAMPING JOBS
—SPEED PRODUCTION**

You'll get the right amount of pressure, every time, whatever the clamping operation—with this new Airmatic Air-Operated "C" Clamp. And you'll find dozens of applications in every department of your plant or shop—for this and the many other Airmatic Clamping Cylinders—that assure accuracy and speed production.

Our quality is tops. Our deliveries are prompt. Our prices are right. Our engineering services are yours for the asking.

Write for our latest catalog CC-3000

AX-26

AIRMATIC

VALVE, INC.

7313
Associate Ave.,
Cleveland 9, Ohio

Phone: WOodbine 1-5320 • WESTERN UNION: Airmatic Valve Inc. FAX: Cleveland Ohio

... for more details, circle No. 76 on Reader Service Postcard

Atkins Saw Div. Moves Los Angeles Warehouse

LOS ANGELES—The local warehouse of Atkins Saw Div., Borg-Warner Corp., formerly located at 2202 South Hill St., has moved to new quarters at 337 East Florence Ave.

According to R. V. Merrell, Atkins sales manager, the new location will provide more warehouse space and better facilities to handle the growing volume of business in the area.

Western Elec. Expands Portland Facilities

PORTLAND—Western Electric Co., the manufacturing and supply unit of the Bell System, has undertaken a \$2,000,000 addition to its Distribution Center here.

To be completed by 1961, the extension will provide 110,000 sq. ft. of floor space with about half the \$2,000,000 cost going into the building itself.

Chemical Milling To Do Research for IBM

EL SEGUNDO, CALIF.—The Electric Typewriter Div. of IBM, New York, has entered into a contract with Chemical Milling International Corp., here, for research and development work on the application of chemical milling techniques to the mass production of components, according to Frank L. Bailey, Chemical Milling president.

Bailey said production experts in many fields are taking a close look at the advantages to be gained from fabricating parts chemically by etching, rather than mechanically through conventional techniques.

Space Electronics Corp. To Double Plant Size

GLENDALE, CALIF.—An additional 15,000 sq. foot building is planned by Space Electronics Corp., here. Identical to the company's present facility, the new building will be attached and adjacent to its plant at 930 Air Way.

The new building will house office space, development laboratories, model and machine shops, plus a limited production area. Occupancy is scheduled for mid-summer, according to Dr. James Fletcher, president.

New Auto Chemicals Firm Building in New Mexico

ALAMOGORDO, N. M.—The newly incorporated Automotive Chemicals Inc. has broken ground for its \$150,000 manufacturing plant here and will manufacture and market under the trade name "Kar-Kem" motor, transmission and gasoline additives, car shampoo, waterless hand cleaner, anti-freeze and bug remover.

The firm, which plans to employ 21 persons initially, is the first such auto chemical products manufacturing facility in the state.

Chemical Process Co. Doubles Plant Space

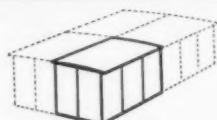
REDWOOD CITY, CALIF.—The Chemical Process Co. will double floor space of laboratories and offices associated with its production plant here.

President of the firm, Alexis E. Post, said the construction of additional wings will house five new laboratory areas, increasing facilities for research and development. Chemical Process makes ion exchange resins, plastics and adhesives.



"When I have dead yard space in one of our plants, I convert it to a work or storage area. The quickest and most inexpensive way is Porta House."

Porta Houses are prefabricated for bolted assembly from waterproof plywood panels. Any size, from 54 sq. ft. to 10,000 sq. ft. Always immediately available. Four-wall enclosure or one or more sides open; doors and windows positioned where desired.



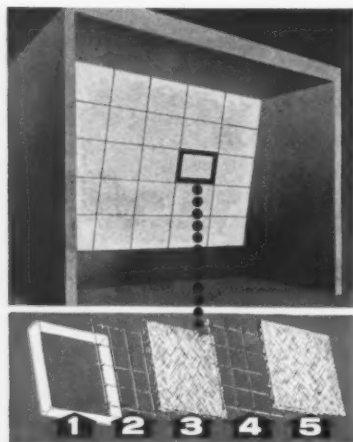
SIZES: 6' OR MORE X 9' OR MORE



Ridgely K. Dodge, 6767 Broadway Terrace, Oakland, Calif.

Phone collect for immediate delivery: OLYmpic 2-7237

... for more details, circle No. 77 on Reader Service Postcard



* A Paint Arrestor module consists of a Holding Frame (1), two Snap-in Grids (2 and 4), two Paint Arrestors (3 and 5). Loaded Paint Arrestors are simply replaced as necessary. And, they're also ideal for air-borne ink, mist, dye, frit, etc.

CONTROL PAINT OVERSPRAY the inexpensive, effective way!

The advantages of R P Paint Arrestors, the inexpensive, disposable air filters are many. Overspray solids are trapped before they reach the exhaust stack...to reduce fire hazards, damage to adjacent property...disagreeable and time-consuming maintenance work. Installation?—easy and fast. Maintenance?—remove loaded Paint Arrestor and replace a new one. Adaptability?—ideal for any type, any size booth, new or existing.

RP PAINT ARRESTORS



Products of Research

RESEARCH PRODUCTS Corporation

DEPT. 312, MADISON 1, WISCONSIN



IN THE WEST

NORMAN S. WRIGHT & CO.

1015 E. FOLSOM, SAN FRANCISCO (UN 3-3321)

625 N. ALVARADO, LOS ANGELES (DU 7-3371)

• SEATTLE (ME 3-1366)

• PHOENIX (BR 5-4469)

• FRESNO (AM 6-5898)

• PORTLAND (CA 6-4827)

• SPOKANE (MA 4-8058)

• SACRAMENTO (GI 1-3796)

... for more details, circle No. 78 on Reader Service Postcard

Red Ball Motor Lines Acquire Couch Motor

SANTA FE, N. M.—The Red Ball Motor Freight, Inc., which operates a terminal here, has purchased the capital stock of Couch Motor Lines, Inc., with headquarters at Shreveport, La., for \$2,550,000.

Subject to ICC approval, H. E. English, chairman of the board, and O. B. English, president, of Red Ball Motor Freight, Inc., will control both Red Ball and Couch Motor Lines, Inc., and be in control of motor carrier operation extending from Denver and Santa Fe to the north and west.

Precision Casting Facility At Garrett Aluminum Foundry

LOS ANGELES — A vertical centrifugal casting facility is now available for precision aluminum casting of rotating equipment, according to an announcement from Garrett Corp.'s AiResearch Mfg. Div. here.

The facilities are capable of casting, in high purity alloys, fans, turbine wheels, supercharger wheels, shrouded and unshrouded compressor wheels and other rotating equipment.

No other foundry on the West Coast is believed to be capable of vertical centrifugal casting.

Two Montana Drilling Firms Announce Merger

BILLINGS, MONT.—The Taylor Drilling Co. of Lewistown, first permanent rotary drilling firm in the state, and the Great Northern Drilling Co., Inc., here, have issued a joint statement of their merger into Great Northern Drilling Co.

The merger doubles Great Northern's capacity from four to eight rigs.

Ike W. Taylor, head of the Taylor firm, will become chairman of the board and a director, said L. P. Anderson, president.

Build Phosphate Plant Near Vernal, Idaho

MONTPELIER, IDAHO — A phosphate concentration plant will be constructed near Vernal, Utah, by San Francisco Chemical Co., which will have an annual capacity of one million tons of acid-grade concentrate, according to D. L. King, president and general manager of the firm.

The first unit of the six-unit Harry Ratliff Concentrator is scheduled for operation by Oct. 17.



Save up to 1/3 on the cost of your next conveyor...new handbook shows how

Tells how to cut planning and installation costs with pre-engineered, ready-built conveyor components for immediate or future handling needs

Install a conveyor system to meet your specific materials handling needs today... tomorrow... or in years to come. Using Standard's Handidrive handbook, simply order pre-engineered, prebuilt interchangeable conveyor components to which additions or alterations can be made as required.

"Do-it-yourself" buyer-users will find Handidrive assembly is fast, easy. The pre-engineered stock units include: roller conveyors (either gravity push-along or live roller type), inclined belt conveyors, drive units, intermediate sections, curved sections, supports, hangers and other miscellaneous items.

Lower initial cost—you buy only what you need—is only one of many Handidrive "off-the-shelf" benefits. The

Handidrive handbook gives full details! Get your copy now... free of charge, of course.

3 plans to help you select and order simplified HANDIDRIVE pre-engineered units

"Do-It-Yourself" Plan — Determine your conveyor requirements, then select stock units from Handidrive handbook.

"Recommendations-Requested" Plan — On your request, a Standard specialist will advise you on installation of a custom-tailored Handidrive conveyor

"Leave-It-All-To-Standard" Plan — Standard's staff of experienced engineers will work out your handling problems of a more complex nature.



STANDARD

GRAVITY & POWER CONVEYORS
Sales and Service in Principal Cities

OVER 50 YEARS
of conveyor experience

SEATTLE: Russel G. Daley, 502 First Ave. Sq.
SAN FRANCISCO: 840 Harrison St.

STANDARD CONVEYOR CO.
North St. Paul 9, Minn., Dept. H-6
Please send me a free copy
of your new Handidrive handbook.

Name.....
Company.....
Address.....
City.....Zone.....State.....

• PORTLAND: 1115 N. W. Gilsan St.
• LOS ANGELES: 115 E. 23rd St.

... for more details, circle No. 79 on Reader Service Postcard



westerners at work



Wm. P. Simmons
William Powell Co.



R. Perry Kilsby
Kilsby-Tubesupply



Gordon Mead
Motorola



R. L. Ridgway
Fairbanks Morse



A. F. Eskelin
Bendix



J. J. McNerney
U. S. Steel



George Mangold
John Bean



A. J. Raynor, Jr.
Becco

■ *William P. Simmons* has been named regional sales engineer, San Francisco, for the William Powell Co. *Robert A. Miles* is newly named district sales rep., Los Angeles.

■ *R. Perry Kilsby*, president of Kilsby-Tubesupply, has been named a vice president of Republic Supply Co. of Calif., Los Angeles.

■ *Gordon Mead* has been named manager account executive program in the West for Motorola Communications & Electronics, Inc., Sacramento, Calif.

■ *R. L. Ridgway* is newly appointed Western regional manager, Compressor Product Sales, Fairbanks Morse & Co., Los Angeles.

■ *Arthur F. Eskelin* has been appointed Pacific regional manager, Industrial Controls Section, Bendix Aviation Corp., Beverly Hills, Calif.

■ *John J. McNerney* is new assistant to the vice pres., production, Los Angeles Dist. of U. S. Steel's Consolidated Western Steel Div.

■ *George Mangold* has been appointed automotive service equipment sales and service rep in the Northwest

for John Bean Div. Automotive Dept., Portland.

■ *Arthur J. Raynor, Jr.*, has been promoted to West Coast dist. manager, Becco Chemical Div., Food Machinery and Chemical Corp., Vancouver, Wash.

■ *William W. Crossman* has been named manager; *Robert J. Martin* sales manager of Hitemp, Inc., Monrovia, Calif.

■ *Charles W. Curtis* has been appointed manager of Hughes Aircraft Co.'s new components div., Culver City, Calif.

■ *Gilbert S. Barry*, *Patrick Bass* and *William E. McComas* have joined the Los Angeles sales staff of Tubesales.

■ *William J. Terpening* has been named secretary-treasurer of U. S. Science Corp., div. of United Industrial Corp., Los Angeles.

■ *Stan Dugmore* has been named comptroller and credit manager Rich Steel Co., Los Angeles.

■ *H. Myrl Stearns*, president of Varian Associates, received an honorary Doctor of Science degree at University of Idaho.

■ *Angus Scott* is new products sales manager, International Rectifier Corp., El Segundo, Calif.

■ *Charles B. Huestis* has been appointed treasurer of Hughes Aircraft Co., Culver City, Calif.

■ *Ray Primmer* is new manager, National Astro Laboratories, Quality Assurance Div., Pasadena, Calif.

■ *T. T. Hinman* has been elected sales vice president of Lockheed Aircraft Service, Inc., Ontario, Calif.

■ *William O. Hedge* is new assistant sales manager, Engineered Electronics Co., Santa Ana, Calif.

■ *David B. Brunson* has been transferred from Oakland, Calif., to Salt Lake City as sales rep for Kaiser Steel.

■ *Curtis W. Magee* is new manager of Spokane, Wash., branch sales office of Aluminum Co. of America.

■ *J. C. Fosberg* is new supervisor of accounting for Jones & Laughlin Steel, Los Angeles plant.

■ *Lonay Nelson* transfers from Portland to Glasgow, Scotland, as newly appointed chief engineer of Hyster Ltd.



Raymond O. Jones
Crown Zellerbach



E. E. Malin
DeSoto Chemicals



C. W. Loughridge
Western Wood



L. G. Maechtlen
Square D Co.



I. E. Stilwill
Goodyear Aircraft



G. R. Chambers III
Eitel-McCullough



G. R. Kastler
L. H. Butcher



R. L. Curtis
Dow Chemical

■ **Raymond O. Jones** has been appointed Crown Zellerbach Corp.'s director of long-range planning at San Francisco.

■ **Edgar E. Malin** has been appointed general sales manager, Berkeley, Calif., and **John H. Collins** district sales manager, Los Angeles, of DeSoto Chemical Coatings, Inc., Pacific Div.

■ **Charles W. Loughridge** has been appointed California district engineer of Western Wood Preservers Institute, San Bruno, Calif.

■ **Lawrence G. Maechtlen** has been elected president of the Square D Co., Detroit, Mich.

■ **I. E. Stilwill** has been named manager of sales, Arizona Div. of Goodyear Aircraft Corp. at Litchfield Park.

■ **George R. Chambers III** has been named manager research and development marketing of Eitel-McCullough, Inc., San Carlos, Calif.

■ **Gordon R. Kastler** has been promoted to manager Salt Lake City branch of L. H. Butcher Co., a subsidiary of the Udylyte Corp.

■ **Russell L. Curtis**, vice president Dow Chemical Co., San Francisco, retired June 1st.

■ **Carl C. McCallus** is new director of marketing, U. S. Relay-Electronics, div. American Safety Razor Products Co., Azusa, Calif.

■ **Donald Wildman** has been appointed manager of Filtration Div., W. A. Plummer Mfg. Co., Los Angeles.

■ **James E. Heywood** has joined Ford Motor Co.'s Aeronutronic Div., Newport Beach, Calif., as assistant general operations manager Computer Operations.

■ **T. Phillips Morgan** is newly appointed director of operations of Consolidated Systems Corp., a Bell & Howell/CEC subsidiary at Pasadena, Calif.

■ **Homer F. Lewis** is newly named vice president and treasurer of Transval Electronics Corp., El Segundo, Calif.

■ **Edwin A. Sweo** has been appointed manager Servo Engineering Dept., Dalmo Victor Co.'s Engineering Div., Belmont, Calif.

■ **Carl Hammond** has been named manager and field engineer of Stove Plumbers Supplies Co.'s new Heating Controls Dept., Oakland, Calif.

■ **Martin E. Marks** has been named vice president and sales manager for U.S. Peroxygen Sales Corp. at Richmond, Calif.

■ **Harold A. Price** has been appointed manager, industrial products, Horkey-Moore Assoc., Torrance, Calif.

■ **Gordon Estabrook** is managing Copymation, Inc.'s, new sales, service and warehouse branch at Palo Alto, Calif.

■ **Richard Hites** has been named manager, Pacific Photocopy Div., Acme Blue Print and Photocraft Co., Phoenix.

■ **Clifford R. Brown** is newly appointed executive vice president and general manager of Standard Rectifier Corp., Santa Ana, Calif.

■ **Berkley L. Fuller** is new manager and **R. Ray Sedillo**, assistant manager, Kittleson Co.'s Palo Alto, Calif., branch office.

■ **Simon Tamny** is new director of research and development, Wayne Mfg. Co., at Pomona, Calif.

■ **John P. Hastings** has been appointed manager, field operations, Instruments Div., American Electronics, Inc., Culver City, Calif.

■ **Thomas W. Donohue** has been named director of marketing for Missimers Inc., Glendale, Calif.

■ **John J. Kelly** is new district manager for Carl Herrmann Assoc., in the Southern California area.

■ **Othmar W. Sailer** is newly named director of marketing at Unitek Corp., Monrovia, Calif.

■ **Lawrence J. Horan** has been appointed manager West Coast Div., National Starch & Chemical Corp., San Francisco.

■ **Edward M. Hayes** is Supt. of Engineering for new aircraft at San Francisco maintenance base of United Air Lines.

■ **Jack Y. Barnes** has been named district engineer for Colorado-Wyoming, Portland Cement Ass'n. at Denver.

- **Lawrence M. Weitzel** has been elected president of Mechanical Specialties Co., Los Angeles.
- **S. Kenneth Weiser** has joined the staff of Luscombe Engineering, Pasadena, Calif.
- **William H. Atwood** has been appointed district manager of Pacific Corrugated Culvert Co., Redding, Calif.
- **William T. Smither** has been named general manager of Servomechanisms, Inc., Hawthorne, Calif.
- **Dr. James M. Carter** is new director Physical Sciences Div., Space Systems Laboratories, Burbank, Calif.
- **Ernest Thompson** is new manager of new Phoenix dist. sales office of I-T-E Circuit Breaker Co.
- **Henry N. Bacon** has been named sales manager of Taylor Roof Structures, Oakland, Calif.
- **Suno V. Malmgren** is newly named senior sales engineer, sewage treatment, Sutorbilt Corp., Compton, Calif.
- **Dr. Charles L. Critchfield** has accepted post as vice president, research with Telecomputing Corp., Los Angeles.
- **Glen M. Ede** has been named vice president of Woodbury & Co., Portland.
- **Michael Gladstone** will represent Rex Precision Products of Culver City, Calif.
- **John E. Koster** has been elected executive vice president Interstate Engineering Corp., Anaheim, Calif.
- **Allen S. Ginsburgh** has been appointed manager, Materials and Fabrication Div., Solid Rocket Plant, Aerojet-General Corp.
- **Lee Pitt** has been appointed manager of Aviation Dept., Los Angeles Chamber of Commerce.
- **E. L. Hiatt**, vice president Union Oil Co., has assumed full responsibility for all operations of Glacier Div., Great Falls, Mont.
- **Joseph D. Bianco** is filling the newly created post of sales manager, Components for Research, Inc., Palo Alto, Calif.
- **R. D. Webb** has joined the staff of MHD Research, Inc., Newport Beach, Calif.
- **Donald B. Pooley**, San Jose, Calif., has been named West Coast manager International Paper Co.'s corrugated shipping container and multiwall bag sales.
- **George J. Noonan** has been appointed manager of sales, State Steel Products, Inc., City of Industry, Calif.
- **Clayton L. Parkhill, Jr.**, has been named general sales manager of Pacific Wire Rope Co., Los Angeles.
- **J. H. Tuttle** is in charge of Cutler-Hammer's new branch sales office in San Diego, Calif.
- **Donald R. Cook** is newly named dist. sales manager for Ringsby Truck Lines, Inc., for Colorado, Wyoming.
- **Rex N. Miller** has been promoted to Western traffic manager, Reynolds Metals Co., Los Angeles.
- **Scott E. Gibb** is new manager of sales promotion for Aluminum Co. of America, Seattle district.
- **Clifford B. Hughes** has been named Western field engineering manager for Cook Batteries, Denver.
- **Frank W. Cowdrey** is newly named sales engineer in the Southern California office of Parker-Hannifin Corp.
- **Bryan Steele** has been named vice president of Western operations, El Segundo plant of Nylok Corp.
- **Ronald E. Cunningham** has been named director of sales for Anadite, Inc., of South Gate, Calif.
- **J. Marshall Couden** has been elected to the Board of Directors, **Don D. Barley** promoted to treasurer and **C. J. Frahm** to secretary of Irving G. King & Co., Los Angeles.
- **R. J. Munzer** of Long Beach, Calif. is new president of the Liquefied Petroleum Gas Association.
- **Maj. Stewart H. Arnold** is new commanding officer of San Jose, California branch of the San Francisco Ordnance Dist.
- **Don S. Catterson** has been promoted to manager, Adhesives Div., Chemical Process Co., Redwood City, Calif.
- **John R. Anderson** and **Harold E. Bankhead** are new district sales managers for Black & Decker at San Francisco and Seattle, respectively.
- **Fred L. Fletcher** has been elected executive vice president of Sierra Pacific Power Co., Reno.
- **C. Harry Burgess** has been elected a vice president of Kennecott Copper Corp., Salt Lake City.
- **Howard L. Waldron** has been appointed engineer for Barodynamics Inc., Georgetown, Colo.
- **George W. Fenimore** has been named general manager of Thompson Ramo-Wooldridge Inc., international div., Denver.
- **Robert M. Pease** has been elected chairman of Colorado Milling & Elevator Co., Denver.

CLASSIFIED SECTION

Space is sold as advertisers' inches. All advertisements in this section are 1/8 inch short of contracted space to allow for borders and composition. Rates are \$16.00 a column inch. Copy should be sent in by the 20th of preceding month if proofs are required; by the 25th if no proofs are required.

FOR SALE

NEVADA ACREAGE FOR SALE BY OWNER

Forty Acres located 3 Mi. North of Reno with 1/4 mile frontage on Highway 395. Near Railroad. Level ground suited for industrial site. Price \$1100/Acre. Contact: Robert H. Johnson, 210 No. Wycliff Ave., San Pedro, Calif. TErminAl 1-3965 (After 5:30 PM).



tape talk ...

personalize your volume mailings!

The impact of a personal typewritten letter is well known, but heretofore these letters in large quantities have been impractical to produce. Now MAILWAYS INC. through use of tape, can volume process your letters ... effectively and economically.

MAILWAYS INC. * --- YUkon 2-2524
*also quality printing & engraving

J. C. Carter Co. Forms Electronics Division

COSTA MESA, CALIF.—Formation of a new electronics division by the J. C. Carter Co., here, has been announced by Dan Kilmer, vice president of the pump and valve firm. Charles W. Jobbins, has been named manager of the new division which will market a line of instruments for precise measurement and control of magnetic fields.

An additional 10,000 sq. ft. of engineering and manufacturing space has recently been completed to accommodate the new group and other Carter expansion. The company recently added the W. M. Lanagan Co., Inc., as a subsidiary.

Gladding, McBean To Acquire Utah Fire Clay

LOS ANGELES—The Boards of Directors of Gladding, McBean & Co. and Utah Fire Clay Co. have approved a plan to be submitted to shareholders of Utah Fire Clay under which Gladding, McBean will acquire control of the Salt Lake City firm through an exchange of stock.

Gladding, McBean operate 10 West Coast plants. Among its major products are dinnerware, sewer pipe, refractories, ceramic veneer, facebrick, ceramic tile and technical ceramics. Its 1959 annual sales were \$35,417,000.

International Resistance Opens Western Laboratory

HOLLYWOOD, CALIF.—A new West Coast Engineering Laboratory for customer service on precision potentiometers has been opened here by International Resistance Co.

The new facility is located at 1136 North LaBrea Ave., and will be under the direction of Robert Zarnosky, who has joined the firm as applications engineer.

Temco Aircraft and Ling Altec Consider Merger

ANAHEIM, CALIF.—The Boards of Directors of Temco Aircraft Corp., Dallas, Texas, and Ling-Altec Electronics, Inc., here, recently approved management's proposal to submit to the shareholders of both companies a plan for the merging of the two organizations. The surviving company would be known as Ling-Temco Electronics, Inc.

Schlage Lock Co. Awards Contract to P.I. Steel

SAN FRANCISCO—Schlage Lock Co., here, has awarded a \$166,000 contract to P. I. Steel Corp. for the erection of an industrial building in south San Francisco on the freeway between San Francisco and the San Francisco International Airport.

The structure will require 215 tons of structural steel and 86 tons of 18-gauge roof decking. A novel feature of the building will be unusually large spans for heavy crane runways.

Chase Steel & Supply Makes a Name Change

LOS ANGELES—Chase Steel & Supply Co., a subsidiary of Jessop Steel & Supply Co., located at 2707 S. Supply Ave., in East Los Angeles has changed its name to Jessop Steel of California.

The change was made in cooperation with a request made by a metal distributor in the same area bearing a similar name. C. F. Lahrman, general manager, said the firm hesitated to make this change because it has done business for 16 years as Chase Steel & Supply.

Louden
SINCE 1867...
MONORAIL & CRANES

THE FIRST NAME IN MATERIALS HANDLING
SAN FRANCISCO

ACME EQUIPMENT COMPANY
801 Minnesota Street
San Francisco 7, California
Telephone: VAlencia 4-5700

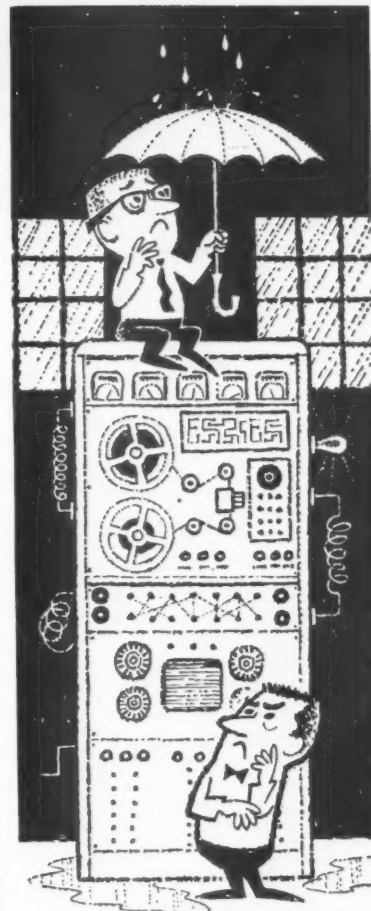
LOS ANGELES

THE AJAY COMPANY
3201 West Beverly Boulevard
Montebello, California
Telephone: RAymond 3-0277

SEATTLE

CHARLES INDUSTRIAL SALES COMPANY
5201 First Avenue South
Seattle 8, Washington
Telephone: PArkway 3-6010

... for more details, circle No. 80



WEATHERPROOFING
problem?



get the
solution
before
problems
start

- roofs • below grade membranes
- mastic floors • seal coating
- reflective-decorative coatings •
- anti-corrosion protection. Send coupon for free manual today!



America's
broadest line
of building
products

Pioneer Division, The Flintkote Company
P.O. Box 2218 Terminal Annex, Los Angeles 54, Calif.

Please send FREE Industrial Products Manual!

NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

... for more details, circle No. 81

ADVERTISERS INDEX

A		G		P	
Acme Chain Corporation	—	General Appraisal Company	—	Pacific Gas and Electric Company	—
Acme Steel Company	—	General Electric Company	64 & 65	Pacific Pumping Company	—
Aeroquip Corporation	—	General Metals Corporation	—	Pacific Scientific Company	—
Airmatic Valve, Inc.	109	Foundry and Forge Division	20	Pacific Telephone & Telegraph Co., The	76
Air Reduction Pacific Company	21	Genie-Air, Inc.	107	Pacific Tube Company	7
Alan Wood Steel Company	22	Gerrard, A. J., and Company	—	Pacific Wire Rope Company	96
Allis, Louis, Company, The	9	Glo-Quartz Electric Heater Co.	—	Palmer-Shile Co.	109
American Brass Company, The	69	Goodall Rubber Company	—	Pasadena Hydraulics, Inc.	85
American Chain Division	—	Goodyear Rubber Company	90	Pennzoil Company, The	63
American Chain & Cable Company, Inc.	—	Green-Penny Company	91	Perfecting Service Co.	84
American Chain Division	—	Great Lakes Carbon Corporation	—	Peterson & Peterson	100
Ampco Metal, Inc.	—	Electrode Division	—	Porta House	110
Anaconda Wire & Cable Company	—	H		R	
Subsidiary of Anaconda Copper Mining Company	15	Harnischfeger Corporation	—	Ready-Power Company	101
Anchor Post Products, Inc.	—	Hassall, John, Inc.	—	Reas Blow Pipe Manufacturing Co.	77
(Fence Div.)	105	Horn, A. C., Companies	—	Reliance Steel and Aluminum Co.	—
Armco Drainage & Metal Products, Inc.	—	Division Sun Chemical Corporation	83	Republic Supply Company, The	71
Automatic Transportation Co.	—	Hough, Frank G., Co., The	99	Research Products Corporation	110
Division of The Yale & Towne Manufacturing Company	13	Hyster Company	—	Revere Copper and Brass Inc.	—
B		I		Richfield Oil Corporation	25
Babbitt Steam Specialty Co.	84	Industrial Air Products Co.	85	Round, David & Son	—
Bellows-Valvair	18	Industrial Battery & Engineering Co.	—	Rust-Oleum Corporation	19
Bliss & Laughlin, Inc.	—	Instrument Society of America	—	Ryerson, Joseph T., & Son, Inc.	—
Boston Gear Works	75	J		S	
Buehrer, E. C., Associates, Inc.	—	Jeffrey Manufacturing Co., The	—	Sarco Company Inc.	—
BullDog Electric Products Division	—	(Ind. Div.)	48	Scott Motors, Inc.	—
I.T.E. Circuit Breaker Company	43	Johnson Bronze Co.	62	Shell Oil Company	61
C		Johnson Gear & Mfg. Co. Ltd.	103	Shuford Mills, Inc.	104
California Bank, Los Angeles	78	Johnston, A. P., Company, Inc.	116	Sierra Drawn Steel Corp.	—
Calstrip Steel Corporation	8	Jones & Laughlin Steel Corp.	—	Smoot-Holman Company	79
Campbell Chain Co.	95	Stainless and Strip Division	—	Snap-On Tools Corporation	77
Centrifugal Casting Company	67	Jorgensen, Earle M., Steel Co.	Cover 2	Soule Steel Company	Cover 4
Chainveyor Corp.	—	K		Standard Conveyor Company	111
Chisholm-Moore Hoist Division	—	Kilsby Tubesupply	26	Standard Oil Company of California	11
Columbus McKinnon Chain Corp.	89	L		Standard Pressed Steel Company	—
Cleveland Tramrail Division	—	Link-Belt Company	—	Columbia-Hallowell Division	45
The Cleveland Crane & Engineering Co.	38 & 39	Louden Machinery Company, The	115	Industrial Fastener Division	6
Cleveland Vibrator Co., The	—	Louis Allis Company, The	9	Superior Alloys Co.	85
Coldwell, Banker & Company	—	Lubriplate Division, Fiske Brothers Refining Co.	100	Surety Rubber Co., The	—
Colorado Fuel and Iron Corporation, The	10	Lufkin Foundry & Machine Co.	88	T	
Colson Equipment & Supply Co.	93	Lunkenheimer Company, The	3	Ton-Tex Corporation	—
Columbia Geneva Steel Division	—	M		Towmotor Corporation	47
United States Steel Corporation	—	Maas-Hansen Steel	—	U	
Columbus McKinnon Chain Corporation	—	Mahon, R. C., Company, The	—	Union Asbestos & Rubber Company	—
Compressor Service Company	—	Mathews Conveyor Company	81	Material Handling Division	82
D		Metal & Thermit Corporation	—	United States Steel Corporation	—
Darnell Corporation, Ltd.	81	Millford Rivet & Machine Co.	—	Columbia Geneva Steel Division	—
Dayton Foundry	83	Miller Electric Mfg. Co., Inc.	92	Universal Metal Hose Company	—
Diamond Chain Company, Inc.	—	Milwaukee Electric Tool Corporation	73	Universal Molding Company	41
Dick, R. & J., Company, Inc.	—	Montgomery Brothers Inc.	97	V	
Dodge Manufacturing Corporation	86	Moore Dry Dock Co.	—	Viking Pump Company	—
Douglas Fir Plywood Association	—	Morris, Stanley E., Co.	—	W	
Ducommun Metals & Supply Co.	Cover 3	Morse Chain Company	—	Wagner Electric Corporation	24
E		Division of Borg-Warner	—	Wolverine Tube Division	—
Electric Steel Foundry Company	35 & 36	Motor Generator Corporation	—	Calumet & Hecla, Inc.	—
Electrolift, Inc.	—	Motorola Communications & Electronics, Inc.	94	Y	
Elwell-Parker Electric Company, The	102	N		Yale & Towne Mfg. Co.	—
F		National Supply Company, The	5	Automatic Transportation Co.	13
Fabriform Metal Brazing	—	Norton Company	23	Yale Materials Handling Division	—
Div. of Geo. Getz Corp.	—	Nutting Truck & Caster Company	—	Z	
Fairbanks, Merse & Co.	59	O		Ziegler Steel Service Corporation	—
Falk Corporation, The	17	P		Z	
Fernholtz Machinery Co.	—	Q			
Fiske Brothers Refining Co.	—	R			
Lubriplate Division	100	S			
Flinthote Co., The Pioneer Division	115	T			
Food Machinery Corporation	—	U			
John Bean Division	—	V			
Foucar, Ray & Simon	82	W			

Johnston Stainless Welding Rods

Practical, Down-to-Earth Welding Rod—
Alloys as they are supposed to be

Corrosion Resistant—
Clean metal

Strong—
Low in cracking

A. P. JOHNSTON CO. INC.
1845 E. 57th St., Los Angeles 58

... for more details, circle No. 82 on Reader Service Postcard

WESTERN INDUSTRY/JUNE 1960

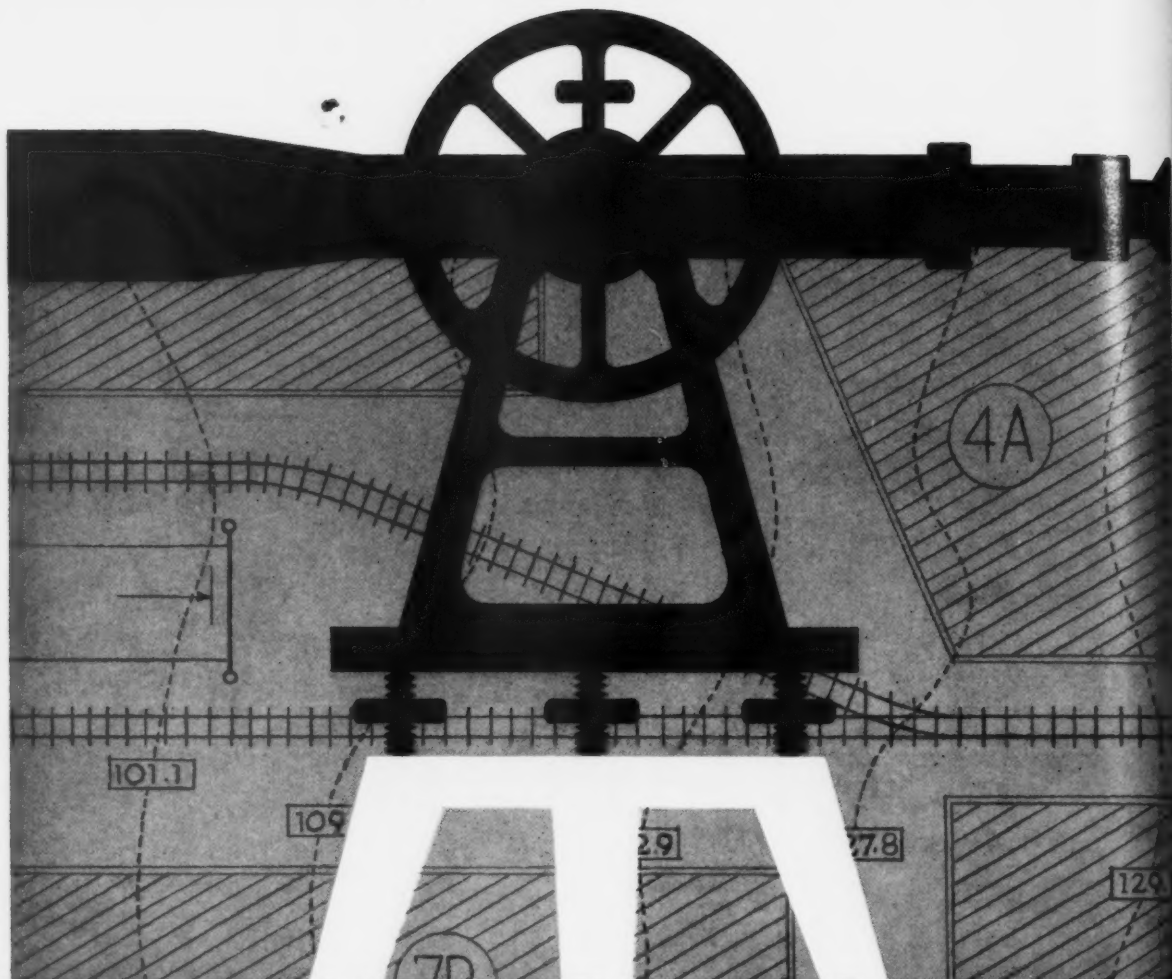
"HERE COMES MY INVENTORY NOW"



This is a scene that's being repeated daily here in the West. It's not unusual to see storage bins near-empty at many manufacturing plants because cost-conscious producers of metal goods have come to count on Ducommun for their metals...delivered when they need them...and only what they need. This sensible buying method effects substantial savings in inventory investment, storage space, handling, scrap loss, shearing, cutting, grinding and burning, as well as in insurance, taxes and obsolescence. It's comforting too, to know that "hard-to-get" items are the "easy to get" items at Ducommun—we can supply *all* your needs...in a matter of hours! Freeing up your capital and reducing your operating costs is good business economy. So is dealing with **DUCOMMUN** Metals & Supply Co.



SERVICE CENTERS: LOS ANGELES, 4890 S. Alameda St., LUdlow 8-0161 • BERKELEY, 2550 Seventh St., THornwall 1-1820, ENterprise 1-2012
SAN DIEGO, 1300 Wilson Ave., GRidley 7-3141 • PHOENIX, 301 S. 26th St., BRidge 5-4471 • SEATTLE, 120 Dawson St., PARKway 5-1500
... for more details, circle No. 83 on Reader Service Postcard



BEFORE YOU DECIDE ON A SITE CONSULT WITH SOULÉ ABOUT SITE-SUITABLE STRUCTURES



You will have a more productive investment in land and facilities if your new location is "site and structure coordinated." Soulé specializes in early-stage planning to assure that you get more for your building dollar. Soulé structures give you many important custom options that let you tailor to the site to meet both your needs and your budget. Call for a planning chat now.

SOULÉ STEEL COMPANY

San Francisco • Los Angeles • San Diego • Portland • Seattle • Spokane • Phoenix • Salt Lake City

... for more details, circle No. 84 on Reader Service Postcard

Soulé

LEADER IN STEEL BUILDINGS



E
UT
S

ctive
ities
and
more



City
stcard